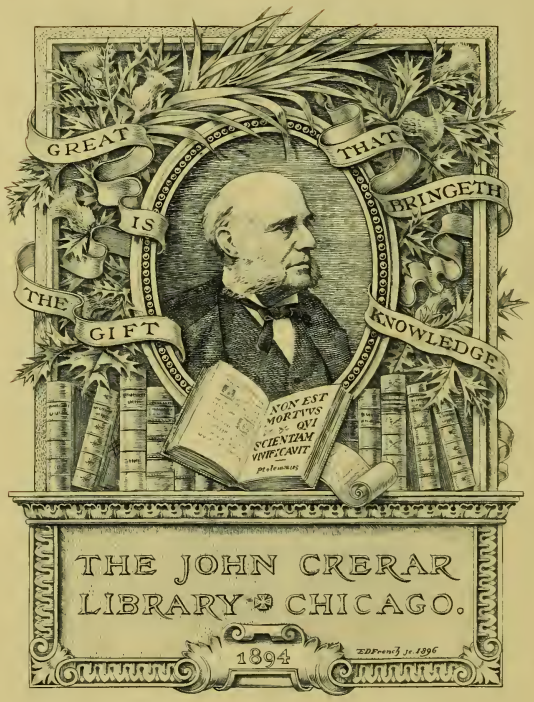
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1894

CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

1902--1903

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CATALOGUE

OF THE

NEW HAMPSHIRE

COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE.

1902-1903.

Printed by Ira C. Evans Co., Concord.

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CATALOGUE.

CALENDAR.

1902.

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COLLEGE CALENDAR.

1902.

Sept. 2-3. Examinations for admission begin Tuesday, at 9 A. M.
Sept. 4. Regular college exercises begin Thursday, at 10 A. M.
Oct. 8. Stated meeting of Trustees.
Nov. 27. Thanksgiving recess.
Dec. 19. First term ends Friday night.

WINTER VACATION.

1903.

Jan. 6. Second term begins Tuesday, at 10 A. M.
Jan. 14. Stated meeting of Trustees.
March 13. Second term ends Friday night.

SPRING VACATION.

March 24. Third term begins Tuesday, at 10 A. M.
April 8. Stated meeting of Trustees.
May 30. Memorial day.
May 31. Baccalaureate Sermon, Sunday.
June 1-2. Examinations for admission begin Monday, at 9 A. M.
June 1. Prize Drill, Monday evening.
June 2. Annual examinations close Tuesday noon.
June 2. Stated meeting of Trustees.
June 2. Smyth Prize Reading and Speaking, Tuesday evening.
June 3. Commencement day, Wednesday.

SUMMER VACATION.

Sept. 1-2. Examinations for admission begin Tuesday, at 9 A. M.
Sept. 3. Regular college exercises begin Thursday, at 10 A. M.
Oct. 14. Stated meeting of Trustees.
Nov. 26. Thanksgiving recess.
Dec. 18. First term ends Friday night.

1904.

Jan. 5. Second term begins Tuesday, at 10 A. M.

BOARD OF TRUSTEES.

Hon. GEORGE A. WASON, New Boston, *President.*
His Excellency Gov. CHESTER B. JORDAN, M. S., LL. D., *ex officio.*
Pres. CHARLES S. MURKLAND, Durham, *ex officio.*
CHARLES W. STONE, A. M., East Andover.
Hon. LUCIEN THOMPSON, Durham, *Secretary.*
Hon. JOHN G. TALLANT, Pembroke.
FREDERICK P. COMINGS, B. S., Lee.
GEORGE B. WILLIAMS, Walpole.
Hon. WARREN BROWN, Hampton Falls.
ROSECRANS W. PILLSBURY, Londonderry.
Hon. RICHARD M. SCAMMON, Stratham.
JAMES E. SHEPARD, New London.
WALTER DREW, Colebrook.
GEORGE B. CHANDLER, Manchester.

Hon. WALTER M. PARKER, A. B., Manchester,
Treasurer.

OFFICERS OF INSTRUCTION.

CHARLES S. MURKLAND, PH. D., D. D., *President and Professor of English Language and Literature.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics and Civil Engineering.*

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy.*

FRED W. MORSE, M. S., *Professor of Organic Chemistry.*

CHARLES L. PARSONS, B. S., *Professor of General and Analytical Chemistry.*

CLARENCE M. WEED, D. SC., *Professor of Zoölogy and Entomology.*

FRANK WILLIAM RANE, B. AG., M. S., *Professor of Horticulture and Forestry.*

CARLETON A. READ, S. B., *Professor of Mechanical Engineering.*

..... *Professor of Agriculture.*

VERNON A. CALDWELL, Captain, U. S. Army, *Professor of Military Science and Tactics.*

HERBERT H. LAMSON, M. D., *Associate Professor of Botany.*

ARTHUR F. NESBIT, S. B., A. M., *Associate Professor of Physics and Electrical Engineering.*

JOSEPH H. HAWES, *Associate Professor of Drawing.*

RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

HARRY A. HAYWARD, M. S., *Associate Professor of Animal Husbandry and Dairying.*

..... *Assistant Professor of Agriculture.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*

HOLLIS C. CLARK, Captain, U. S. Army, Retired, *Instructor in English.*

ARTHUR A. BLANCHARD, S. B., PH. D., *Instructor in Chemistry.*

EDWARD H. HANCOCK, B. S., *Instructor in Mechanism and Woodwork.*

ALBERT F. CONRADI, M. S., *Assistant in Zoölogy.*

LEMUEL POPE, JR., D. V. S., *Lecturer on Animal Pathology.*

PURCHASING AGENT.

FREDERICK C. KEITH.

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

LIBRARY.

PROF. CLARENCE W. SCOTT, *Librarian.*

EDITH A. DEMERITT, *Assistant Librarian.*

AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

HON. JOHN G. TALLANT, *Chairman* . Pembroke
HON. GEORGE A. WASON . . . New Boston
CHARLES W. STONE, A. M., *Secretary* East Andover
HON. WARREN BROWN . . Hampton Falls
PRES. CHARLES S. MURKLAND, *ex officio* . Durham

STATION COUNCIL.

CHARLES S. MURKLAND, *President of the College.*
FRED W. MORSE, M. S., *Chemist and Vice-Director.*
CHARLES H. PETTEE, A. M., C. E., *Meteorologist.*
HERBERT H. LAMSON, M. D., *Bacteriologist.*
CLARENCE M. WEED, D. Sc., *Entomologist.*
FRANK WILLIAM RANE, B. AG., M. S., *Horticulturist.*
HARRY A. HAYWARD, M. S., *Associate Agriculturist.*

LUCIEN A. HILL, B. S., *Assistant Chemist.*
HARRY F. HALL, *Assistant in Horticulture.*
ALBERT F. CONRADI, M. S., *Assistant Entomologist.*
ARTHUR L. SULLIVAN, B. S., *Assistant Chemist.*
HERBERT M. TUCKER, *Farm Foreman.*
FREDERICK C. KEITH, *Clerk.*
EDITH M. DAVIS, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April tenth of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state

for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue, which are included under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $10,500; and from various other sources, about $5,000.

At the last session of the legislature the sum of $30,000 was appropriated for the erection and equipment of a new building for the agricultural and horticultural departments. This building is nearly ready for occupancy, and is notably solid and substantial, thoroughly built and equipped, so far as it has been completed.

GENERAL INFORMATION.

The New Hampshire College of Agriculture and the Mechanic Arts is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

There are twenty-five Conant scholarships, each paying $40 and tuition, $60,—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire county is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire county, and those in excess of the number of towns, are to be assigned to agricultural students at the discretion of the faculty.

There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Through the generosity of the late Mr. Hamilton Smith, of Durham, the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and,

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and,

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving, in character and scholarship."

These scholarships, yielding $500 each, became available to those applying for examination in 1898, and to one student in each succeeding class.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

PRIZES.

I. *The Smyth Prizes.*—Through the generosity of the late ex-Governor Frederick Smyth, the following prizes have been offered: to the members of the senior and junior classes, two prizes, one of twenty dollars and the other of ten, for the best essays on subjects connected with agriculture or the mechanic arts; also three prizes, one of twenty, one of fifteen, and one of ten dollars, for excellence in oratory. To the members of the sophomore and freshman classes, two prizes for reading, one of fifteen and one of ten dollars. Since the death of ex-Governor Smyth the prizes have been continued by Mrs. Marion C. Smyth.

II. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

III. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE ON EXPENSES.

Tuition	Free	$60.00
Text-books	$10.00 to	20.00
Fees*	15.00	15.00
Room rent, including fuel	18.00 to	40.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00 to	122.50
Total	$148.00	$257.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

* Including all charges commonly considered for extras, except those for breakage and damage to college property.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, drawing, biology, and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology, chemistry, and engineering.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Any person of mature years may be admitted as a special student, by vote of the faculty, upon presenting satisfactory evidence of ability to complete the desired course of study.

ATTENDANCE.

All regular students are required to attend chapel and rhetorical exercises, and to register for the required number of exercises per week; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal installments: one on the first day of the fall term, and the other on the first day of the winter term, of each year.

ELECTION OF STUDIES.

Every student must, on the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, must pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

No student shall be registered in any class until he has completed three fourths of the work of the preceding year, and all the work required up to the beginning of that year.

SUNDAY SERVICES.

On Sunday the college chapel exercises are held at five o'clock in the afternoon. At this vesper service the president of the college usually gives a talk upon some topic of vital interest to the higher life of the student body.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings, and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western division of the Boston & Maine railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, a soil physics laboratory, a lavatory, and rooms used for storage.

One half of the first floor is devoted to the library, which is provided with a large, well-lighted reading-room for papers and magazines, a reference room for special work, a librarian's room, a delivery-room, and shelf space for fifty thousand volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drafting-room, and recitation rooms for biology, mechanical engineering, agriculture, philosophy, and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

CONANT HALL.

[Chemical and Physical Laboratories.]

Conant Hall contains the laboratories and lecture rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 x 70 feet, and three stories high, including the basement. It is heated by

steam brought from the shops, lighted by gas and electricity, and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arragements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic, and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room, and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory, from the neighborhood of which masses of iron have been excluded, so that magnetic measurements can be made with a good degree of accuracy; and the physical lecture room, which is provided with all necessary conveniences, as before mentioned. For optical experiments, the room can be darkened by means of special window-shutters, operated from one of the lecture desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 x 106 feet, and two stories high, with a basement 31 x 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood shop, in which the common branches of carpentry, joinery, and pattern making are taught. Practice is given in the use of carpenters' tools, and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 x 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating two hundred and forty horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney ninety-five feet high carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering, and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological, and microscopical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making, and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns, and refrigerators, together with the engine.

BARNS.

The cattle barn is a wooden structure, the main portion of which is 50 x 100 feet, two stories in height, with a large basement. It has a one story L 40 x 100 feet, with a basement under two thirds of it. This barn is a model structure, erected at an expense of about ten thousand dollars. It has accommodations for about sixty head of cattle, which are provided with sanitary stalls. There are the necessary divisions for storage of hay, grain, and seeds, and rooms for milk, scales, ensilage cutter, and repair shop. In addition there is a cold storage room and a feed room. There are two silos, each having a capacity of about one hundred and twenty-five tons.

A second barn is used by the agricultural department for storing hay and implements, and stabling the department horses.

A third barn, about 30 x 60 feet, is used at present for keeping the horses and implements employed by the horticultural department.

GREENHOUSES.

The college has two greenhouses. The main house is even span and 25 x 100 feet in dimensions. It is divided by partitions into three compartments, each of which is piped for steam and has special arrangements for controlling the temperature, so that the rooms are well adapted for experimentation with different kinds of plants. The second house is 25 x 45

feet, and is utilized for growing various kinds of foliage and flowering plants, especially those used for outdoor decorations in summer. The first house mentioned is mainly used in winter for forcing vegetables. In the fall one division is given over to chrysanthemums, and sometimes violets and carnations are grown here throughout the winter. The houses are both accessible from a good sized potting house. This also contains an office and room for seed-boxes, scales, and tools; and at one end is a room devoted to photography.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of plants and seeds, a large number of lantern-slide illustrations, grass charts, and other illustrative material. The soil physics laboratory is equipped with balances, a soil compacting machine, apparatus for determining the specific gravity and the water holding capacity of soils. The college farm is equipped with a variety of farm implements and machinery, including cultivators, plows, wagons, planters, rollers, and harvesters. The farm with its 300 acres has a variety of soils, and offers excellent opportunities for practical demonstrations of the principles of this science.

ANIMAL HUSBANDRY.

The college barns, live stock and dairy are all utilized for the work in animal husbandry. The herd is composed of representative cattle of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins, Durhams, and grades. In the proposed new agricultural building it is expected that a live-stock room will be provided where animals may be brought before the class for inspection and criticism.

HORTICULTURE.

The greenhouses, orchards, and grounds offer opportunities for demonstrating the theories advocated in the lecture room. Many varieties of different kinds of fruits are to be found in

the orchards. These are young, but some are coming into bearing. The past year the plum orchard of some sixty varieties yielded a heavy crop. Grapes, peaches, apples, cherries, and small fruits are all being grown at the Experiment Station. Many vegetables are raised, and much attention is given to methods of culture and varieties. Propagation of fruits, shrubs, and floricultural plants is practiced. A fine collection of Vilmorin charts is owned by this department. A collection of lantern slides illustrating the work in horticulture is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of sixty acres of old forest growth is owned by the college. It is located close at hand, and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds, and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

Through the courtesy of leading manufacturers of dairy and creamery appliances all available space is filled with various forms of cream separators, milk coolers, churns, and other appliances. Reid's latest pasteurizer, and the Disbrow combined churn and worker,—the only machines of the kind in New Hampshire,—have also been secured for the benefit of dairy students. The most approved appliances for milk testing form a part of the regular equipment. Steam is supplied by the large boilers at the power-house, and a new twelve horse-power engine adds to the efficiency of the department. In addition to the product of the college herd milk is received from about twenty-five farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work, and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories, and contain the forty horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and the large compound duplex pump which receives water under a head of fifteen feet through an eight-inch pipe from a reservoir one half mile distant, and forces it through underground mains to the various hydrants and buildings, or through nozzles for measurements during tests. This pump, with its long supply pipe, a ten-inch stand-pipe, and a 6,000-gallon stand-pipe, furnish apparatus for an extensive series of hydraulic experiments. It is fitted with indicator motions and other necessary equipment for complete duty tests.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression, and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a $5\frac{1}{2}$ x 8 x 7 air pump; and the usual supply of scales, gauges, thermometers, and small apparatus. The three sectional boilers, and the one hundred horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer, and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch x 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; twelve benches with vises; and a large number of small tools, including micrometer, calipers, and gauges necessary for accurate work. The lathes in the wood shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains thirteen Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 x 5 vertical engine. The student is taught the principles of forging, welding, and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks, and bench tools. Foundry work is taken in connection with the course in pattern-making, and the student molds and casts from the patterns he has constructed in the wood shop. Castings are made in iron, brass, and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism, the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small low-potential testing unit, consisting of a universal alternator belted to a direct current motor, and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be

FORGE SHOP.

THE
JOHN CRERAR
LIBRARY.

connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the five-hundred-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete fifty-five-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter, and transformer.

In the dynamo laboratory, a Westinghouse junior engine has been installed. It is capable of developing about twenty-three-brake horse-power under one hundred pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted, and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. A set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments, have been purchased for this shop.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious, and well equipped. Each is supplied with the latest forms of apparatus required for its particular kind of work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern, and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books, and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of

the insects of the state arranged in glass covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes, and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of geometric vase forms, plaster casts of historic ornament, details of human form, antique sculpture, as well as vases and common objects. The models for machine-drawing are few, but the various machines of other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of about ten thousand bound volumes and six thousand pamphlets. A considerable part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about seven thousand well selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and geology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, seven hours per week of chemical work during the junior year, and eight hours per week during the senior year. Two years of German will be required, and French is recommended to be taken by students intending to enter the division.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care, and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical, and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations, and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances, and the methods of designing building, and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN TECHNICAL CHEMISTRY.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations, and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. The large and well furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

I. Arithmetic, including the metric system.

II. Algebra through quadratic equations, including radicals, and fractional and negative exponents.

III. Plane and Solid Geometry.

IV. Physics.—Gage's or Carhart & Chute's, or an equivalent.

V. Botany.—Gray's Lessons, sections 1 to 15 (inclusive), and sections 18 and 19, or an equivalent, with some knowledge of classification, and experience in the analysis of our common flowering plants.

VI. Physical Geography.

VII. History of the United States.—Channing's Students' History of the United States, or an equivalent, with four hundred pages additional reading. Constitution of the United States. This is to represent not less than three exercises per week during one year of the high school course.

VIII. History of Greece.—Myers' larger work, or an equivalent.

IX. History of Rome to 814.—An adequate preparation would be represented by Myers' Rome, its Rise and Fall, and Chapters I to VI, of Myers' Middle Ages; or by Allen's Roman People, and Emerton's Introduction to the Middle Ages.

X. French or German.—Grammar. Translation of simple prose. Composition.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More stress, however, is placed on the translation from French into idiomatic English. The student should read at least four hundred pages. The following books are recommended:

1. Laboulaye Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon).
2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrain Le Conscrit de 1813; Dumas, LaTulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives, and pronouns, the elements of syntax, the uses of the modal auxiliaries, and the translation from English into German of simple connected passages. In addition the applicant must have translated at least two hundred pages of simple German prose. The following books are recommended:

1. Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader (Allyn & Bacon).
2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker Irrfahrten (Henry Holt); Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

XI. English.—Two sets of books are prescribed for preparation in English, one for reading, the other for more careful study. No candidate will be admitted whose work is notably defective in points of spelling, punctuation, idiom, or division into paragraphs. The examinations will consist of two parts:

1. Reading.—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two

on each of several topics to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the book. In preparation for this part of the requirement it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be:

In 1903–1905, The Sir Roger de Coverley Papers in "The Spectator"; Goldsmith's Vicar of Wakefield; Tennyson's Princess; Scott's Ivanhoe; George Eliot's Silas Marner; Coleridge's Rime of the Ancient Mariner; Shakespeare's Merchant of Venice and Julius Cæsar; Carlyle's Essay on Burns; Lowell's Vision of Sir Launfal.

2. Study and Practice.— This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

The books set for this part of the examination will be:

In 1903–1905, Shakespeare's Macbeth; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro, Il Penseroso, Lysidas, and Comus.

Preparation is advised in Plane Trigonometry, also.

Admission will be refused to candidates failing in English, or showing marked deficiencies in spelling and punctuation.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

A certificate from an academy or a high school will be accepted in place of an examination, upon any subject required for admission. Every certificate must state the amount of work done by the student, his proficiency, and the text-books used; and in case it is not evident that the student is thoroughly prepared, an examination will be required.

Certificate forms will be furnished on application.

In place of an examination, the college will accept a certificate indicating the satisfactory completion of the second, third, or fourth of the courses of study for high schools recommended by the State Educational Council, and adopted by the State Teachers' Association at its meeting in Manchester, October, 1901, provided such high school is on the list approved by the State Superintendent of Public Instruction.

The times for examination are the Monday and Tuesday before Commencement, and the Tuesday and Wednesday before the beginning of the first term. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 P. M. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 P. M. on the next day, Wednesday. All work required for graduation must be completed by 6 P. M. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

For the Courses of Study see page 60 et seq.

AGRICULTURE.

The rapid development of this science has made it necessary to divide the broad subject of Agriculture into more specific heads. Accordingly these studies will be found in the following groups: Agronomy, animal-husbandry, dairy-husbandry, forestry, and horticulture.

AGRONOMY.

1. Elementary Agriculture. *Sixty exercises.*

Lectures, recitations, and practical exercises on the fundamental principles of general agriculture. This course forms the foundation for the courses that follow it.

2. General Agriculture. *Twenty exercises.*

Lectures, recitations, and practical exercises on the general field of agriculture and the fundamental principles.

3. Farm Equipment. *Forty-five exercises.*

Lectures and recitations upon selecting, planning, and equipping farms; planning and erecting farm buildings; farm vehicles and machinery; power, water, and drainage; practical exercises in drawing plans of farms and farm buildings; leveling and laying drains; dynamometer tests of wagons and farm implements, etc.

4. Soils and Fertilizers. *Twenty exercises.*

Lectures, recitations upon the origin, formation, kinds, and physical properties of soils and their improvement by cultivation, natural and artificial fertilizers, drainage, and irrigation. Practical exercises in testing physical properties of several soils, determining the relation of soils to heat, moisture, air, and fertilizers, and making mechanical analysis.

5. Farm Crops. *Thirty exercises.*

Lectures and recitations upon the history, production, marketing, and harvesting of farm crops. Practical exercises with growing and dried specimens of farm crops, including grasses, clovers, and other forage crops.

6. Agricultural Seminary. *Thirty exercises.*

This course consists of the study of current agricultural literature. Each student will prepare abstracts, reports, or essays upon assigned articles, books, bulletins, and various agricultural problems.

7. History of Agriculture and Rural Economics. *Twenty exercises.*

Lectures upon the history of agriculture, present agricultural methods in various countries, cost and relative profits of various farm operations and systems.

ANIMAL INDUSTRY.

1. Sheep, Mutton, Wool, Swine, and their products. *Thirty exercises.*

A comparative study of the breeds; selection, care, and management of sheep under various conditions; different grades of wool, and their uses and value, the comparative quality and value of the various portions of the mutton carcass; the raising of early lambs.

A study of the breeds and types of swine; the selection and management of breeding stock; the preparation of swine for exhibition; the influence of food upon pork products; bacon and ham curing. Lectures, recitations, and practice in judging.

2. Breeds of Beef Cattle. *Forty-five exercises.*

A study of the breeds and breed type; a study of beef type from the standpoint of the demands of the market; the method of beef production; the preparation of cattle for sale and exhibition; the common diseases of cattle, and their treatment. Lectures, recitations, and judging practice.

3. Breeds of Horses. *Thirty exercises.*

The history, development, and characteristics of draft horses; outlines of heavy horses demanded by the market; the production and preparation of draft horses for the market; the training and the proper method of harnessing and hitching.

Light horses, their history, development, characteristics, and uses; the breeding, training, fitting, and marketing bus, cab, and saddle horses; the selection of stallions; the care and management of brood mares; the care of the foal. Lectures, recitations, and judging practice.

4. Principles of Stock Feeding. *Thirty exercises.*

The laws of nutrition, conditions affecting the palatability and assimilation of foods; the effect of foods upon animals and animal products; the digestibility of foods, and conditions affecting digestibility. Lectures, recitations, and laboratory work.

5. Breeds of Dairy Cattle. *Forty-five exercises.*

A history and development of the breeds of dairy cattle; the formation of herds; the value of pedigree in the selection of dairy cattle; the rearing of the dairy calf; the common diseases, their cause and treatment. Lectures, recitations, and practice in judging.

6. Principles of Breeding. *Thirty exercises.*

The value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; heredity, and its operation under various conditions, etc. Lectures, recitations, and assigned readings.

7. Stable Management and Hygiene. *Twenty exercises.*

Stables, stable equipment and management, ventilation, drainage; grooming; care of harness and wagons, etc. Lectures.

BOTANY.

1. Structural Botany. *Thirty exercises.*

Lectures and laboratory work on the minute structure and physiology of plants, with special reference to the higher forms.

Open only to those who have taken the preparatory Botany or its equivalent.

2. Plant Diseases. *Twenty exercises.*

A study by means of lectures and laboratory work of some of the more important fungous diseases of cultivated plants, and the means of preventing their injuries.

Open only to students who have completed Botany 1.

3. Advanced Courses.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises.

Open only to those who have shown special proficiency in Botany.

CHEMISTRY.

1. Inorganic Chemistry. *Forty-five exercises.*

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required.

2. Inorganic Chemistry. *Thirty exercises.*

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

3. Organic Chemistry. *Twenty exercises.*

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties by means of specimens.

Open only to students who have completed Courses 1 and 2.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. He will have practice in the writing of reactions, and will fill out numerous slips containing questions bearing upon his work.

Open only to students who have completed Course 1.

5. *a.* Chemistry of Plant Growth. *Forty-five exercises.*

The composition of plants at different stages of growth, and the conditions necessary for their development. This subject must be preceded by Chemistry Courses 1, 2, and 3.

b. Food and Nutrition. *Twenty exercises.*

These subjects include the composition of foods, and the animal body; the assimilation of the former by the latter, and the principles underlying a rational diet. This subject should be preceded by Course 5*a*.

6. *a*. Industrial Chemistry. *Twenty exercises.*

Course 6*a* consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable.

b. Metallurgy. *Twenty exercises.*

Course 6*b* consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products.

Open only to those who have completed Courses 1 and 2.

7. Advanced Quantitative Analysis.

Course 7 extends through the year, and is intended to fit the student for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel, and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary, and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas analysis will also be provided. A portion of the time of the last two terms is given to work bearing upon the preparation of a graduating thesis.

Open only to students who have completed Course 4.

8. Organic Chemistry. *Thirty exercises.*

Course 8, for students in the Chemical Division of the Agricultural Course, and in the Technical Chemistry Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to those who have completed Course 3.

9. Chemical Journals, Methods, etc.

Thirty-five exercises.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles.

Open to students taking Course 7.

10. *a*. Physical Chemistry, Lectures. *Twenty exercises.*
b. Theoretical Chemistry, Lectures. *Twenty exercises.*

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, molecular, and atomic volume, the chemistry of space, etc., will take up much of the time.

Course 10 comes in alternate years with Course 6, and is open to students who have completed Courses 1, 2, and 3.

DAIRY HUSBANDRY.

1. The Study of Dairy Breeds. *Forty-five exercises.*

Recitations and lectures on the origin, history, distribution, characteristics, adaptability, and standards of excellence of pedigreed breeds of cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

2. The Study of Dairy Feeding. *Thirty exercises.*

Recitations and lectures on animal nutrition, the composition and value of various foods, and the kind and amount of food best adapted for milk production. Students are required to prepare proper feeding rations.

3. Milk. *Twenty exercises.*

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

4. Milk Testing. *Forty-five exercises.*

Lectures and recitations on the history and principles of the Babcock test and its application on the dairy farm, and in the creamery or milk inspector's laboratory. Under the guidance of the instructor the student will practice testing milk and its products until competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating milk solids.

5. Dairy Bacteriology. *Forty-five exercises.*

Lectures, recitations, and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream.

6. Management of Dairy Machinery. *Forty-five exercises.*

Lectures on the construction, operation, and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management.

7. Butter-making. *Forty-five exercises.*

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details which make possible the production of fine butter.

8. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings and creameries are also required, with estimates for building and equipment.

DRAWING.

These courses are of an industrial nature, and include both free-hand and mathematical branches of this subject. They aim to cultivate accurate observation, careful thinking in applying the underlying theories, and manual dexterity in making the graphic records. The immense value of drawing as a means of expression is coming to be more and more fully recognized.

Two and one half hours' work is counted as one exercise.

The work of the first two terms is required of all regular students. This includes elementary free-hand industrial drawing, and mathematical drawing, by means of instruments. The advanced mathematical and machine drawing is prescribed for engineering courses. The advanced free-hand drawing is elective, and may be taken only by those with adequate preparation.

1. Industrial Drawing.

a. Fifty-three exercises. *b. Thirty-five exercises.*

Additional Course for Women.*

c. Twenty-two exercises. *d. Fifteen exercises.*

Free-hand drawing in outline and in light and shade, from geometric models, common objects, and casts of historic ornament; use of instruments; geometrical drawing; lettering and figuring; orthographic projection; elementary perspective; working drawings.

2. Industrial Drawing.*

a. Twenty exercises. *b. Thirty exercises.*

Light and shade drawing from the cast and from still life; pencil sketching; design; details of building construction; projection drawing.

3. Descriptive Geometry and Drawing.

a. Thirty exercises. *b. Twenty exercises.*
c. Thirty exercises.

Recitations and drawing exercises in the solution of problems in plane and solid geometry, by means of orthographic projections.

d. Twenty exercises.

Recitations on shades, shadows and perspective, with exercises in perspective drawing.

Course 3 is open only to those who have passed Mathematics 2.

4. Mechanical Drawing. *a. Thirty exercises.*

Orthographic projection; lettering and figuring; working drawings; tracings and blue-prints.

b. Seventy-five exercises. *c. Thirty exercises.*
d. Thirty exercises.

Working drawings and drafting-room practice.

5. Industrial Drawing.*

a. Forty-five exercises. *b. Fifty exercises.*
c. Thirty exercises.

Study of architectural detail; design; use of color; pencil sketching; perspective; historic ornament.

* Elective.

6. Drawing and History of Painting.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises.

Antique figure from casts, pencil sketching, charcoal drawing, use of water colors; study of the history of painting.

ENGINEERING.

1. Surveying. *Thirty exercises.*

Recitations, field-work, and plotting, including compass, transit, plane-table, and level work.

2. Mechanism.

a. Thirty exercises. *b. Twenty exercises.*
c. Twenty exercises.

Recitations, and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection.

Course 2 is open only to those who have taken Drawing 3.

3. Mechanics of Engineering.

a. Thirty exercises. *b. Fifty exercises.*
c. Fifty exercises.

Courses 3*a* and 3*b* are devoted to recitations in Statics and Dynamics; Course 3*c* to Mechanics of Materials.

Course 3 is open only to those who have taken Mathematics 1 to 5, inclusive.

4. Materials of Construction. *Sixty exercises.*

Recitations on the production, properties, uses, and preservation of engineering materials.

Course 4 is open only to those who have taken Course 3c and Chemistry 2.

5. Steam Engineering.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises.

Recitations and lectures on Thermodynamics, Boilers, and Valve Gears.

Course 5 is open only to those who have taken Courses 3a, 3b, and Physics 1 and 2.

6. Hydraulics. *Forty-five exercises.*

Course 6 is open only to those who have taken Course 5.

7. Dynamos and Electro-motors.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises.

Lectures and quizzes on the construction and theory of dynamos and electro-motors, direct current and alternating.

Course 7 is open only to those who have taken Physics 1 to 4 and Mathematics 1 to 5.

8. Mechanical Laboratory.

a. Thirty exercises. *b. Thirty exercises.*
c. Twenty exercises.

Tests of materials, boilers, engines, pumps, indicators, etc.

Course 8 is open only to those who have taken Courses 1 to 5.

9. Machine Design. *Forty exercises.*

Course 9 is open only to those who have taken Courses 3 and 4.

10. Mechanical Engineering.

a. Multiple expansion engines. *Thirty exercises.*
b. Gas and Hot Air Engines and Refrigerating Machinery. *Thirty exercises.*

11. Roads, Streets, and Pavements. *Thirty exercises.*

Recitations and lectures on construction and maintenance of paved, macadamized, and gravel roads, with discussion of laws relating thereto.

12. Electrical Engineering.

a. Forty-five exercises. *b. Sixty exercises.*
c. Forty-exercises.

A careful study is made of the principles and methods employed in telegraphy, telephony, and electric signaling; the transmission of electric energy for lighting and power purposes, by direct current, single phase, and multiphase systems; the electric railway, its installation and operation, and the practical management of dynamos and motors.

In connection with this course it is intended to make excursions to representative stations and plants, as a supplement to the class-room work.

Course 12 is open to those who have taken Engineering 7 and Physics 7, a to c.

ENGLISH.

1. Rhetoric.

a. Thirty exercises. *b. Twenty exercises.*
c. Twenty exercises.

2. Three Themes. *One each term.*

Required of all students registered in the Sophomore class.

3. Three Original Declamations. *One each term.*

Required of all students registered in the Junior class.

4. Three Original Declamations. *One each term.*

Required of all students registered in the Senior class.

5. Early English. *Forty-five exercises.*

Study of authors.

6. Elizabethan Writers. *Twenty exercises.*

Study of authors.

7. Writers of the Restoration and the French Influence. *Twenty exercises.*

8. Victorian Writers. *Forty-five exercises.*

9. American Literature. *Fifty exercises.*

Lectures and study of authors.

FORESTRY.

1. Arboriculture and Forestry. *Twenty exercises.*

The use of trees for shelter, shade, and ornament, and their propagation. Value of trees for timber. How to improve existing woodlands. Influence of forests upon soils, crops, and climate. Establishment and management of plantations of forest trees.

2. Advanced Forestry. *Thirty exercises.*

Theoretical and practical work to enable a student to prepare for forestry practice.

Open only to students having taken Course 1.

a. Arboriculture and Forestry. *Twenty exercises.*

One afternoon is reserved each week for a practical exercise to accompany this course.

FRENCH.

*Courses 1, 2, and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation. *Forty-five exercises.*

2. Grammar continued. Simple stories, committing of poems to memory. Dictation. *Thirty exercises.*

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation. *Thirty exercises.*

4. Reading and translation of Modern Prose, Composition, Poems. *Forty-five exercises.*

5. Reading, Translation, and Composition continued. *Thirty exercises.*

6. French Prose, History, and Travel; Composition based on some book read in class. *Thirty exercises.*

7. French Prose, Sight Reading. *Forty-five exercises.*

Hugo, Balzac, Sand.

8. Classical French. *Thirty exercises.*

Corneille, Racine, and Molière.

9. General Review of French Literature. Outside reading; sight work.

GEOLOGY.

1. Elementary Geology. *Thirty exercises.*

2. Mineralogy. *Thirty exercises.*

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value.

Course 2 is open only to those who have taken Chemistry 1 and 2.

GERMAN.

*Courses 1, 2, and 3 are taken in Freshman year by students who offer French for admission.

1. German Grammar. Declension of articles, nouns, adjectives, and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Forty-five exercises.

2. Verbs, model auxiliaries, essentials of syntax. Composition, Reading, and Translation; Poems. Dictation.

Thirty exercises.

3. Reading, Translation, and Composition; Sight Translation. Dictation. *Thirty exercises.*

4. German Prose of the Nineteenth Century. Composition based on some book read in class. *Forty-five exercises.*

5. German Prose of the Nineteenth Century continued. Composition, outside reading. *Thirty exercises.*

6. Easier works of Lessing and Schiller. Composition. *Thirty exercises.*

7. Masterpieces of German Literature. Lessing and Schiller.

8. Goethe. German Ballads and Lyrics.

9. General review of German Literature, outside reading.

HISTORY.

In the courses in history an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years.

*The aim throughout the courses in French and German will be to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation, and paraphrasing the assigned texts.

1. History of Europe from 814 to 1598. Recitations and collateral reading. *Forty-five exercises.*

2. History of Europe from 1598 to 1715. Recitations and collateral reading. *Thirty exercises.*

3. History of Europe from 1715 to 1789. Recitations and collateral reading. *Thirty exercises.*

4. Political and Constitutional History of England. Recitations and collateral reading. *Sixty exercises.*

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading. *Thirty exercises.*

6. History of Europe since 1815. Recitations and collateral reading. *Thirty exercises.*

7. Political and Constitutional History of the United States from 1783 to 1850. *Sixty exercises.*

8. Political and Constitutional History of the United States since 1850. *Thirty exercises.*

HORTICULTURE.

1. Principles of Horticulture. *Twenty exercises.*

Lectures, recitations, and practical exercises on the fundamental principles of general horticulture. This course forms the foundation of the courses that follow it.

2. Olericulture and Seed Growing. *Forty-five exercises.*

Lectures and recitations. References: Green's Vegetable Gardening, Henderson's Gardening for Profit, Brill's Seed Growing, and various special pamphlets.

Open only to those having completed Botany 1.

3. Greenhouse Management. *Twenty exercises.*

The construction and management of greenhouses; crops of the vegetable forcing-house. References: Bailey's Forcing Crops, Taft's Greenhouse Construction.

4. Pomology and Viticulture. *Forty-five exercises.*

References: Downing's Fruit and Fruit Trees of America, Thomas' American Fruit Culturist, Barry's Fruit Garden, Fuller's Small Fruit Culturist.

Open only to those having completed Botany 2 and Zoology 3.

5. Plant Breeding and Evolution of Domesticated Plants. *Twenty exercises.*

Lectures and recitations upon the laws governing plant life.

6. Horticultural Seminary. *Twenty exercises.*

This course consists of the study of current horticultural literature and various advanced horticultural problems not heretofore touched upon.

7. Landscape Gardening and Floriculture. *Twenty exercises.*

The principles of æsthetics as applied to natural scenery; the adornment of home grounds, including management of house plants, climbing vines, and flowering bulbs.

a. Principles of Plant Growth. *Forty-five exercises.*

This course is elementary, and points to the fundamentals of horticulture. One afternoon each week is reserved for a practical exercise to accompany this course.

b. Vegetable Gardening and Seed Growing. *Forty-five exercises.*

This course aims to familiarize the student with modern methods of vegetable growing. Soils, varieties, culture, marketing, enemies, etc., are studied. Lectures, recitations, and laboratory work.

c. Greenhouse Management. *Thirty exercises.*

The aim of this course is to fit men to understand and become familiar with the practical as well as the theoretical principles of running a greenhouse. The more common forcing and general greenhouse crops and plants are studied. Lectures, recitations, and laboratory work.

d. Fruit Growing. *Forty-five exercises.*

The culture, classification, and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations, and laboratory work.

MATHEMATICS.

1. Algebra completed. *Seventy-five exercises.*

2. *Solid Geometry, with advanced course. *Forty exercises.*

3. Plane and Spherical Trigonometry. *Fifty exercises.*

4. Analytic Geometry. *Seventy-five exercises.*

5. (*a*) Differential Calculus, (*b*) Integral Calculus. *One hundred exercises.*

6. Astronomy. *Forty exercises.*

7. Differential Equations. *Thirty exercises.*

8. Quaternions. *Twenty exercises.*

METEOROLOGY.

1. Meteorology. *Thirty exercises.*

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes, and methods of prediction of atmospheric changes.

MILITARY SCIENCE AND TACTICS.

1. Military Drill.

Practical instruction in drill and gymnastic exercises.

Four exercises per week throughout the course.

2. Military Tactics.

Theoretical instruction in drill regulations and the elementary principles of military science.

One exercise per week throughout the Freshman, Sophomore, and Junior years.

PHILOSOPHY.

1. Logic. *Thirty exercises.*

Lectures and recitations.

2. Psychology. *Forty-five exercises.*

Open only to students who have maintained a high average in Course 1.

* Elective for those entering unprepared in this subject.

3. Ethics. *Thirty exercises.*

Lectures and recitations.

Open only to students who have maintained a high average in Courses 1 and 2.

4. Elements of Philosophy. *Fifty exercises.*

Open only to students who have maintained a high average in Courses 1 and 2.

5. History of Philosophy. *Forty exercises.*

Open only to students who have maintained a high average in Course 4.

PHYSICS.

1. Mechanics. *Thirty exercises.*

2. (*a*) Heat, (*b*) Light. *Forty-five exercises.*

3. Sound. *Twenty exercises.*

4. Electricity and Magnetism. *Forty exercises.*

Courses 1, 2, 3, and 4 are a general introduction to the subject. The instruction is given by recitations and lectures, the latter being illustrated by experiments and stereopticon.

5. Elements of Least Squares and the Precision of Measurements. *Forty-five exercises.*

6. Physical Laboratory.

a. Thirty exercises. *b. Thirty exercises.*

The work consists in the experimental verification of the laws of physics and the determination of physical constants, a few of the investigations being the following: The analytical balance, the law of the pendulum, harmonic motions of translation and rotation, specific heats, latent heats, expansion of gases, law of lenses, candle-power of lights, velocities of sound in air and metals, the intensity of the earth's magnetism, the resistance of wires and voltaic cells, the e. m. f. of batteries, etc.

Courses 5 and 6 are taken consecutively and are open only to those who have passed in Courses 1, 2, 3, and 4. Students in engineering must also have passed in Mathematics 1 to 5, inclusive.

7. Theoretical Electricity.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises. *d. Forty-five exercises.*
e. Thirty exercises.

The course includes the subjects of electro-statics, magnetism, and electro-dynamics, as treated mathematically, the study of electrical measuring instruments and methods, and the theory of periodic currents.

Course 7 is open only to those who have passed Courses 1 to 6.

8. Applications of Electricity.

a. Forty-five exercises. *b. Thirty exercises.*

The principles and methods employed in electrical measurements — such as resistance of wires and batteries, e. m. f. of batteries, current measurement by ammeter and electrolysis, use of the voltmeter, etc.— will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps, and the general principles of electrical distribution.

Course 8 is open to those who have taken Courses 1 to 4.

9. Electrical Laboratory.

a. Twenty exercises. *b. Twenty exercises.*

This work consists of the various uses of the Wheatstone Bridge; the calibration of galvanometers, ammeters, etc.; the measurement of high resistances, capacities, and inductances; the determination of the candle-power of incandescent and arc lamps; the study of direct and alternating current dynamos and motors; the efficiencies of a transformer under different loads; power measurements by watt-meter, etc.

Course 9 is open only to those who have passed in Physics 1 to 7, and Engineering 7.

See also Engineering.

POLITICAL SCIENCE.

1. Political Economy. *Fifty exercises.*

An elementary course, with lectures upon some of the practical questions of the day.

2. Laws of Business. *Thirty-three exercises.*

Recitations supplemented by lectures and the discussion of cases.

3. American Constitutional Law. *Forty-two exercises.*

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

4. Advanced Political Economy. *Thirty exercises.*

A consideration of such subjects as banking, bimetallism, and tariff legislation.

Open only to those who have taken Course 1.

5 Advanced Political Economy. *Thirty exercises.*

Open only to those who have taken Courses 1 and 4.

6. International Law. *Thirty exercises.*

SHOP WORK.

Three hours' work in the shop is reckoned as one exercise.

1. Work in Wood Shop.

a. Thirty-seven exercises. *b. Twenty-five exercises.*
c. Thirty exercises.

Exercises in carpentry work, joinery, and pattern making.

2. Work in Machine Shop, Forge Shop, and Foundry.

Exercises in bench work, machine work, and shop measurements, forging, molding, and casting.

a. Forty-five exercises. *b. Thirty exercises.*
c. Thirty exercises. *d. Thirty exercises.*
e. Twenty exercises. *f. Twenty exercises.*
g. Forty-five exercises. *h. Thirty exercises.*
i. Thirty exercises.

ZOOLOGY.

1. Introductory Zoölogy. *Forty-five exercises.*

A general introduction to the study of animal life, by means of lectures and laboratory dissections of the principal types.

2. Animal Biology. *Twenty exercises.*

A general study of the nature and processes of animal life, with special attention to heredity, variation, development, and mental powers.

Open to students who have taken Course 1.

3. Entomology. *Thirty or fifty exercises.*

A review of the classification, structural characters, and biological relations of insects, with a special study of those injurious to cultivated crops and domestic animals, and of the means of preventing their injuries.

Open only to those who have taken Courses 1 and 2.

4. Economic Ornithology. *Thirty exercises.*

Lectures on the relations of birds to agriculture, and their relations to each other and to other organisms.

Course 4 is open only to students who have taken Courses 1, 2, and 3.

5. Comparative Anatomy. *Twenty exercises.*

Lectures on anatomy and physiology of domestic animals.

6. Advanced Zoölogy.
Averaging four exercises a week for a year.

Course 6 is intended for those students who elect Zoology for their senior year. It will usually be modified to suit individual needs. Open only to those who have completed all preceding Courses, and shown special proficiency in Zoology.

7. Zoölogical Bibliography.
One exercise a week for a year.

Open only to students taking Course 6.

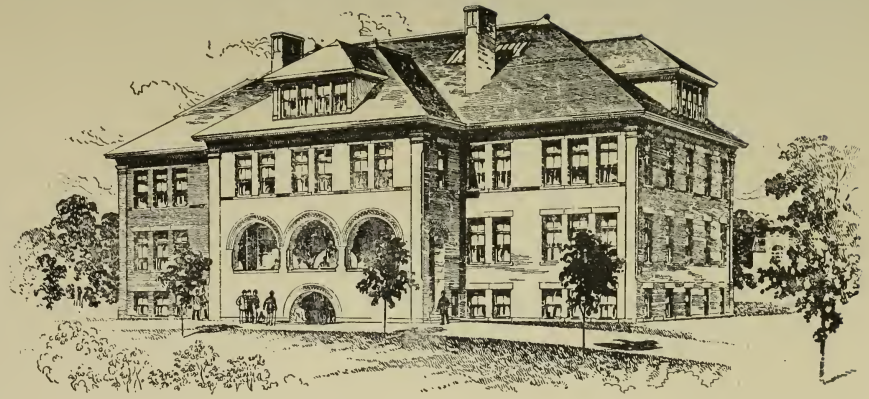
COURSE OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily, except that on Sundays the exercises are held at 5 P. M. Attendance is required of all students.

Military drill: Military Science 1. M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

Rhetoricals: Wednesdays, 12 to 12.30. Attendance is required of all students.



MORRILL HALL.
New Building for Agriculture and Horticulture.

THE
JOHN CRERAR
LIBRARY.

FRESHMAN YEAR.

FOR ALL FOUR-YEAR COURSES.

FIRST TERM.

	Exercises per week.
Rhetoric—English 1*a*	2
Algebra—Mathematics 1	5
Shop Work and Drawing—Shop Work 1*a* and Drawing 1*a*	5
Drawing—Drawing 1*a*	1
†History—History 1 or 4	3
French—French 1 or German—German 1	3
*Solid Geometry—Mathematics 2	3
Military Tactics—Military Science 2	1

SECOND TERM.

Rhetoric—English 1*b*	2
Trigonometry—Mathematics 3	5
Shop Work and Drawing—Shop Work 1*b* and Drawing 1*b*	5
Drawing—Drawing 1*b*	1
†History—History 2 or 5	3
French—French 2 or German—German 2	3
Military Tactics—Military Science 2	1

THIRD TERM.

Rhetoric—English 1*c*	2
†Surveying—Engineering 1	3
Mechanics—Physics 1	3
†Botany—Botany 1	3
†Shop Work—Shop Work 1*c*	3
†Agronomy—Agronomy 2	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 4*a*	3
†History—History 3 or 6	3
French—French 3 or German—German 3	3
Military Tactics—Military Science 2.	

* Optional.

† In the first and second terms History is taken by women in place of Shop Work. It is also taken by students who are prepared for advanced work. In the third term Shop Work and Drawing are taken by students intending to complete either of the Engineering Courses or the Course in Technical Chemistry; Botany is taken by all other students. Agriculture and Horticulture are taken by students intending to complete the Agricultural Course. History is taken by students intending to complete the General Course. Students in the General Course also elect between Surveying and Horticulture.

COURSE IN AGRICULTURE.

Sophomore Year.

FIRST TERM.

	Exercises per week.
Farm Equipment—Agronomy 3	3
Olericulture—Horticulture 4	3
Introductory Zoölogy—Zoölogy 1	3
Heat and Light—Physics 2	3
Inorganic Chemistry—Chemistry 1	3
German—German 4	3
Military Tactics—Military Science 2	1
One Theme—English 2.	

SECOND TERM.

Soil Physics—Agronomy 4	2
Arboriculture and Forestry—Forestry 1	2
Animal Biology—Zoölogy 2	2
Comparative Anatomy—Zoölogy 5	2
Sound and Electricity—Physics 3 and 4	3
Inorganic Chemistry—Chemistry 2	3
German—German 5	3
Greenhouse Management—Horticulture 3	2
Military Tactics—Military Science 2	1
One Theme—English 2.	

THIRD TERM.

Stock Feeding—Animal Husbandry 2	3
Entomology—Zoölogy 3	5
Plant Diseases—Botany 2	2
Organic Chemistry—Chemistry 3	2
Electricity and Magnetism—Physics 4	3
German—German 6	3
Military Tactics—Military Science 2	1
One Theme—English 2.	

Junior Year.

*Technical studies may be elected in place of courses in English and Philosophy of Junior and Senior years in the Agricultural Course.

FIRST TERM.

Pomology—Horticulture 4	3
Chemistry of Plant Growth—Chemistry 5*a*	3
Ornithology—Zoölogy 4	1

French—French 4 3
or Am. Political History—History 4 4
Chemical Laboratory—Chemistry 4 3
*Early English—English 5 3
Physiological Anatomy—Animal Husbandry 5 2
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

SECOND TERM.

Food and Nutrition—Chemistry 5*b* 2
*Logic—Philosophy 1 3
Geology—Geology 1 3
French—French 5 3
or Am. Political History—History 5 3
Chemical Laboratory—Chemistry 4 3
*Elizabethan Writers—English 6 2
General and Special Pathology—Animal Husbandry 6 2
Greenhouse Management—Horticulture 3 2
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

THIRD TERM.

Farm Crops 7—Agronomy 5 3
Political Economy—Political Science 1 5
*English Literature—English 7 2
French—French 6 3
or Modern History—History 3 3
Mineralogy—Geology 2 3
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

Senior Year.

FIRST TERM.

Breeds of Live Stock—Animal Husbandry 4 3
Agricultural Seminary— Agronomy 6 2
Constitutional Law—Political Science 3 }
Laws of Business—Political Science 2 } 5
*English Literature—English 8 3
*Psychology—Philosophy 2 3
One Original Declamation—English 4.

SECOND TERM.

Principles of Breeding—Animal Husbandry 4 3
Plant Breeding—Horticulture 5 2
Dairy Husbandry 2
International Law—Political Science 6 3
or Astronomy—Mathematics 6 4
or Elements of Philosophy—Philosophy 4 5
*Ethics—Philosophy 3 3
Advanced Political Science 4 3
One Original Declamation—English 4.

THIRD TERM.

Rural Economics—Agronomy 7 2
Agricultural or Horticultural Seminary—Agronomy 6 or Horticulture 6 2
Landscape Gardening—Horticulture 7 3
†Roads—Engineering 11 3
†History of Philosophy—Philosophy 5 4
†Meteorology—Meteorology 1 3
†Advanced Political Economy—Political Science 5 3
†Advanced Forestry—Forestry 2 3
One Original Declamation—English 4.

COURSES IN ENGINEERING.

SOPHOMORE YEAR.

FIRST TERM.

Exercises per week.

Analytic Geometry—Mathematics 4 5
Descriptive Geometry—Drawing 3*a* 2
Heat and Light—Physics 2 3
German—German 4 3
Shop Work—Shop Work 2*a* 3
Mechanism—Engineering 2*a* 2
Military Tactics—Military Science 2 1
One Theme—English 2.

SECOND TERM.

Differential Calculus—Mathematics 5*a* 5
Descriptive Geometry—Drawing 3*b* 2
Sound and Electricity—Physics 3 and 4 3
German—German 5 3
Shop Work—Shop Work 2*b* 3
Mechanism—Engineering 2*b* 2
Military Tactics—Military Science 2 1
One Theme—English 2.

†Elect 9 exercises.

THIRD TERM.

Integral Calculus—Mathematics 5*b* 5
Electricity and Magnetism—Physics 4 3
German—German 6 3
Descriptive Geometry and Perspective Drawing—Drawing 3*c* and 3*d* . 5
Mechanism—Engineering 2*c* 2
Military Tactics—Military Science 2 1
One Theme—English 2.

JUNIOR YEAR.

Throughout the year Shop Work is taken by Mechanical Engineering students and Theoretical Electricity by Electrical Engineering students.

FIRST TERM.

Mechanics of Engineering—Engineering 3*a* 4
Inorganic Chemistry—Chemistry 1 3
Theoretical Electricity—Physics 7*a* 3
Least Squares and Precision of Measurements—Physics 5 . . . 3
Steam Engineering—Engineering 5*a* 3
Dynamos and Electro-Motors—Engineering 7*a* 3
Shop Work—Shop Work 2*d* 2
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

SECOND TERM.

Mechanics of Engineering—Engineering 3*b* 4
Inorganic Chemistry—Chemistry 2 3
Physical Laboratory—Physics 6*a* 3
Steam Engineering—Engineering 5*b* 3
Dynamos and Electro-Motors—Engineering 7*b* 3
Theoretical Electricity—Physics 7*b* 3
Shop Work—Shop Work 2*e* 2
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

THIRD TERM.

Mechanics of Engineering—Engineering 3*c* 4
Mineralogy—Geology 2 3
Physical Laboratory—Physics 6*b* 3
Steam Engineering—Engineering 5*c* 3
Dynamos and Electro-Motors—Engineering 7*c* 3
Theoretical Electricity—Physics 7*c* 3
Shop Work—Shop Work 2*f* 2
Military Tactics—Military Science 2 1
One Original Declamation—English 3.

COURSE IN MECHANICAL ENGINEERING.

Senior Year.

FIRST TERM.

	Exercises per week.
Materials of Construction—Engineering 4	4
Hydraulics—Engineering 6	3
or French—French 4	3
Mechanical Drawing—Drawing 4*b*	5
Mechanical Laboratory—Engineering 8*a*	2
Chemical Laboratory—Chemistry 4	2
Shop Work—Shop Work 2*g*	3
One Original Declamation—English 4.	

SECOND TERM.

Machine Design—Engineering 9	4
Mechanical Laboratory—Engineering 8*b*	3
Mechanical Engineering—Engineering 10*a*	3
or French—French 5	3
Chemical Laboratory—Chemistry 4	2
Drawing—Drawing 4*c*	3
Shop Work—Shop Work 2*h*	3
One Original Declamation—English 4.	

THIRD TERM.

Mechanical Engineering—Engineering 10*b*	3
or French—French 6	3
Mechanical Laboratory—Engineering 8*c*	2
Political Economy—Political Science 1	5
Thesis	3
Drawing—Drawing 4*d*	3
Shop Work—Shop Work 2*i*	3
One Original Declamation—English 4.	

COURSE IN ELECTRICAL ENGINEERING.

Senior Year.

FIRST TERM.

	Exercises per week.
Materials of Construction—Engineering 4	4
Theoretical Electricity—Physics 7*d*	3
Mechanical Drawing—Drawing 4*b*	2
Mechanical Laboratory—Engineering 8*a*	2
Electrical Engineering—Engineering 12*a*	3
or French—French 4	3
Hydraulics—Engineering 6	3
Chemical Laboratory—Chemistry 4	2
One Original Declamation—English 4.	

SECOND TERM.

Electrical Laboratory—Physics 9a	2
Electrical Engineering—Engineering 12*b*	6
Mechanical Laboratory—Engineering 8*b*	3
Theoretical Electricity—Physics 7*e*	3
Chemical Laboratory—Chemistry 4	2
Mechanical Engineering—Engineering 10*a*	3
or French—French 5	3
One Original Declamation—English 4.	

THIRD TERM.

Mechanical Laboratory—Engineering 8*c*	2
Electrical Engineering—Engineering 12*c*	4
or French—French 6	3
Electrical Laboratory—Physics 9*b*	2
Thesis	3
Political Economy—Political Science 1	5
Mechanical Engineering—Engineering 10*b*	3
One Original Declamation—English 4.	

COURSE IN TECHNICAL CHEMISTRY.

Sophomore Year.

FIRST TERM.

	Exercises per week.
Analytic Geometry—Mathematics 4	5
Descriptive Geometry—Drawing 3*a*	2
German—German 4	3
Inorganic Chemistry—Chemistry 1	3
Heat and Light—Physics 2	3
Military Tactics—Military Science 2	1
One Theme—English 2.	

SECOND TERM.

Differential Calculus—Mathematics 5*a*	5
Descriptive Geometry—Drawing 3*b*	2
German—German 5	3
Inorganic Chemistry—Chemistry 2	3
Sound and Electricity—Physics 3 and 4	3
Military Tactics—Military Science 2	1
One Theme—English 2.	

THIRD TERM.

Integral Calculus—Mathematics 5*b*	5
Mineralogy—Geology 2	3
German—German 6	3
Organic Chemistry—Chemistry 3	2
Electricity and Magnetism—Physics 4	3
Military Tactics—Military Science 2	1
One Theme—English 2.	

Junior Year.

FIRST TERM.

Chemistry of Plant Growth—Chemistry 5*a*	3
Shop Work—Shop Work 2*a*	2
French—French 4	3
Mechanics of Engineering—Engineering 3*a*	4
Chemical Laboratory—Chemistry 4 and 7	6
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	

SECOND TERM.

Chemical Laboratory—Chemistry 7	7
Industrial Chemistry—Chemistry 6*a*	2
Mechanics of Engineering—Engineering 3*b*	4
French—French 5	3
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	

THIRD TERM.

Chemical Laboratory—Chemistry 7	7
Metallurgy—Chemistry 6*b*	2
Mechanics of Engineering—Engineering 3*c*	5
French—French 6	3
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	

SENIOR YEAR.

FIRST TERM.

Chemical Laboratory—Chemistry 7	7
Organic Chemistry—Chemistry 8	2
Chemical Journals—Chemistry 9	1
Steam Engineering—Engineering 5*a*	3
Application of Electricity—Physics 8*a*	3
One Original Declamation—English 4.	

SECOND TERM.

Chemical Laboratory—Chemistry 7 and Thesis	7
Steam Engineering—Engineering 5*b*	3
Chemical Journals—Chemistry 9	1
Physical Chemistry—Chemistry 10*a*	2
Applications of Electricity—Physics 8*b*	3
One Original Declamation—English 4.	

THIRD TERM.

Chemical Laboratory—Chemistry 7 and Thesis	5
Chemical Journals—Chemistry 9	1
Theoretical Chemistry—Chemistry 10*b*	2
Political Economy—Political Science 1	5
Meteorology—Meteorology 1	3
One Original Declamation—English 4.	

GENERAL COURSE.

Sophomore Year.

FIRST TERM.

	Exercises per week.
Introductory Zoölogy—Zoölogy 1	3
German—German 4	3
Inorganic Chemistry—Chemistry 1	3
Heat and Light—Physics 2	3
History—History 1 or 4, or Analytic Geometry—Mathematics 4	4 or 5
Military Tactics—Military Science 2	1
One Theme—English 2.	

SECOND TERM.

German—German 5	3
Inorganic Chemistry—Chemistry 2	3
Sound and Electricity—Physics 3 and 4	3
*History—History 2 or 5	3
*Animal Biology—Zoölogy 2	2
*Industrial Drawing—Drawing 2*a*	2
*Differential Calculus—Mathematics 5*a*	5
*Forestry—Forestry 1	2
Military Tactics—Military Science 2	1
One Theme—English 2.	

* Elect 17 exercises.

THIRD TERM.

German—German 6	3
Electricity and Magnetism—Physics 4	3
*History—History 3 or 6	3
*Entomology—Zoölogy 3	3
*Organic Chemistry—Chemistry 3	2
*Industrial Drawing—Drawing 2*b*	3
*Integral Calculus—Mathematics 5*b*	5
Military Tactics—Military Science 2	1
One Theme—English 2.	

* Elect 10 exercises.

Junior Year.

FIRST TERM.

French—French 4	3
American Political History—History 7	4
*Early English—English 5	3
*German—German 7	3
*Chemistry of Plant Growth—Chemistry 5*a*	3
*Economic Ornithology—Zoölogy 4	1
*Chemical Laboratory—Chemistry 4	3
*Least Squares and Precision of Measurements—Physics 5	3
*Drawing—Drawing 5*a*	3
*Differential Equations—Mathematics 7	2
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	

* Elect 9 exercises.

SECOND TERM.

French—French 5	3
American Political History—History 8	3
*Elizabethan Writers—English 6	2
Logic—Philosphy 1	3
*German—German 8	3
*Geology—Geology 1	3
*Food and Nutrition—Chemistry 5*b*	2
*Chemical Laboratory—Chemistry 4	3
*Physical Laboratory—Physics 6*a*	3
*Drawing—Drawing 5*b*	2 or 5
*Quaternions—Mathematics 8	2
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	

* Elect 8 exercises.

THIRD TERM.

French—French 6	3
*Mineralogy—Geology 2	3
*Writers of Restoration—English 7	2
Political Economy—Political Science 1	5
Military Tactics—Military Science 2	1
One Original Declamation—English 3.	
*Drawing—Drawing 5*c*	3
*Chemical Laboratory—Chemistry 7	3
*Physical Laboratory—Physics 6*b*	3
*German—German 9	3

* Elect 9 exercises.

Senior Year.

FIRST TERM.

English 4 required; sixteen exercises elective.

Constitutional Law—Political Science 3 Laws of Business—Political Science 2	5
French—French 7	3
Victorian Writers—English 8	3
Psychology—Philosophy 2	3
Chemical Laboratory—Chemistry 7	3
Advanced Zoölogy—Zoölogy 6	4
Advanced Botany—Botany 3	3
Drawing and History of Painting—Drawing 6*a*	3
One Original Declamation—English 4.	
Thesis work	2

SECOND TERM.

English 4 required; sixteen exercises elective.

French—French 8	3
Astronomy—Mathematics 6	4
International Law—Political Science 6	3
Elements of Philosophy—Philosophy 4	5
Ethics—Philosophy 3	3
Advanced Political Economy—Political Science 4	3
Chemical Laboratory—Chemistry 7	3
Advanced Zoölogy—Zoölogy 6	3
Advanced Botany—Botany 3	3
Drawing and History of Painting—Drawing 6*b*	3
One Original Declamation—English 4.	
Thesis work	1 or 2

THIRD TERM.

English 4 required; fourteen exercises elective.

American Literature—English 9	5
French—French 9	3
Meteorology—Meteorology 1	3
Roads—Engineering 11	3
History of Philosophy—Philosophy 5	4
Advanced Political Economy—Political Science 5	3
Chemical Laboratory—Chemistry 7	3
Advanced Zoölogy—Zoölogy 6	3
Advanced Botany—Botany 3	3
Drawing and History of Painting—Drawing 6*c*	3
Landscape Gardening—Horticulture 7	3
Advanced Forestry—Forestry 2	3
One Original Declamation—English 4.	
Thesis Work.	

HOURS OF STUDY.

Term	Day	Section	8–9	9–10	10–11
First	Mon.	I			Mathematics 1...
		II			
	Tues.	I	German 1.....	French 1.....	Mathematics 1...
		II			
	Wed.	I	Drawing 1a.....	Drawing 1a.....	
		II			English 1a.....
	Thu.	I	German 1.....	French 1.....	Mathematics 1...
		II			Military Sci. 2...
	Fri.	I		History 1 or 4.....	Mathematics 1...
		II	Drawing 1a.....	Drawing 1a.....	English 1a.....
	Sat.	I	German 1.....	French 1.....	Mathematics 1...
		II			
Second	Mon.	I			Mathematics 3...
		II			
	Tues.	I	German 2.....	French 2.....	Mathematics 3...
		II			
	Wed.	I	Drawing 1b.....	Drawing 1b.....	Mathematics 3...
		II			English 1b.....
	Thu.	I	German 2.....	French 2.....	Mathematics 3...
		II			Military Sci. 2...
	Fri.	I			
		II	Drawing 1b.....	Drawing 1b.....	English 1b.....
	Sat.	I	German 2.....	French 2.....	Mathematics 3...
		II			
Third	Mon.			Drawing 4c.....	Physics 1.....
	Tues.		German 3.....	Botany 1.....	Botany 1.....
				French 3.....	
				Drawing 4a.....	Drawing 4a.....
				French 3.....	
	Wed.		Military Sci. 2...	English 1c.....	Physics 1.....
			English 1c.....	Military Science 2...	
	Thu.		German 3.....	Botany 1.....	Botany 1.....
				French 3.....	
				Drawing 4a.....	Drawing 4a.....
				French 3.....	
	Fri.			English 1c.....	Physics 1.....
			English 1c.....		
	Sat.		German 3.....	Botany 1.....	Botany 1.....
				French 3.....	
				Shop-work 1c.....	Shop-work 1c....
				French 3.....	

ALL FOUR YEARS' COURSES.

Day	Section	11–11.50.	1.30–2.30.	2.30–4.
Mon.	I	.....	Drawing 1a.....	Drawing 1a
	II	Mathematics 1.....	Shop-work 1a.....	Shop-work 1a
Tues.	I	.....	Drawing 1a.....	Drawing 1a
	II	Mathematics 1.....	Shop-work 1a.....	Shop-work 1a
Wed.	I	English 1a	Drawing 1a or.....	Shop-work 1a
	II	History 1 or 4	Shop-work 1a or.....	Drawing 1a
Thurs.	I	Military Science 2...	Shop-work 1a or	History 1 or 4
	II	Mathematics 1	Drawing 1a	Drawing 1a
Fri.	I	English 1a	Shop-work 1a...	Shop-work 1a
	II	Mathematics 1.....	Drawing 1a.....	Drawing 1a
Sat.	I	.....	.....	.....
	II	Mathematics 1.... ..	.....	....
Mon.	I	.....	Drawing 1b.....	Drawing 1b
	II	Mathematics 3	Shop-work 1b or.....	History 2 or 5
Tues.	I	.....	Drawing 1b	Drawing 1b
	II	Mathematics 3	Shop-work 1b or	History 2 or 5
Wed.	I	English 1b.....	Drawing 1b or.....	Shop-work 1b
	II	Mathematics 3	Shop-work 1b or.....	Drawing 1b
Thurs.	I	Military Science 2...	Shop-work 1b.....	Shop-work 1b
	II	Mathematics 3.	Drawing 1b	Drawing 1b
Fri.	I	English 1b	Shop-work 1b.....	Shop-work 1b
	II	History 2 or 5	Drawing 1b.....	Drawing 1b
Sat.	I	.....	.....	.....
	II	Mathematics 3	.....	....
Mon.	.....	History 3 or 6	Engineering 1.....	Engineering 1
	.....	.....	.....	.....
Tues.	.....	Botany 1	Engineering 1	Engineering 1
	.....	Drawing 4a	.....	.....
Wed.	.....	Horticulture 3.....	Engineering 1	Engineering 1
	.....	.....	.....	.....
Thurs.	.....	Botany 1.....	Shop-work 1c.....	Shop-work 1c
	.....	Drawing 4a	History 3 or 6	History 3 or 6
Fri.	.....	Horticulture 3.....	Shop-work 1c.....	Shop-work 1c
	.....	.....	History 3 or 6.....	History 3 or 6
Sat.	.....	Botany 1	.....	....
	.....	Shop-work 1c.....	.....	.....

AGRICULTURE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	.....	.....	Chemistry 1	Chemistry 3	Zoölogy 1	Zoölogy 1
	Tuesday	Horticulture 2	Horticulture 2	Physics 2	German 4	Agronomy 3	Agronomy 3
	Wednesday	....	Agronomy 3	Chemistry 1	Chemistry 3	Zoölogy 1	Zoölogy 1
	Thursday	Military Science 2	.....	Physics 2	German 4	Horticulture 2	Horticulture 2
	Friday	.....	Agronomy 3	Chemistry 1	.....	Zoölogy 1	Zoölogy 1
	Saturday	Horticulture 2	Horticulture 2	Physics 2	German 4	.....	.....
Second..	Monday	.....	.....	Chemistry 2	.....	Forestry 1	.....
	Tuesday	.....	Forestry 1	Physics 3 & 4	German 5	Zoölogy 5	.....
	Wednesday	Horticulture 3	Horticulture 3	Chemistry 2	Agronomy 4	Zoölogy 2	Zoölogy 2
	Thursday	Military Science 2	Forestry 1	Physics 3 & 4	German 5	Forestry 1	Forestry 1
	Friday	Horticulture 3	Horticulture 3	Chemistry 2	Agronomy 4	Zoölogy 2	Zoölogy 2
	Saturday	Zoölogy 5	.....	Physics 3 & 4	German 5	.....	.....
Third ...	Monday	.....	Botany 2	Botany 2	Chemistry 3	Zoölogy 3	Zoölogy 3
	Tuesday	....	Animal Husbandry 1	Physics 4	German 6	Zoölogy 3	Zoölogy 3
	Wednesday	.....	Botany 2	Botany 2	.....	Zoölogy 3	Zoölogy 3
	Thursday	Military Science 2	Animal Husbandry 1	Physics 4	German 6	Zoölogy 3	Zoölogy 3
	Friday	....	Animal Husbandry 1	Animal Husbandry 1	Chemistry 3	Zoölogy 3	Zoölogy 3
	Saturday	.....	.....	Physics 4	German 6	....	.....

AGRICULTURE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First...	Monday	.....	Military Science 2	English 5	French 4	Chemistry 4	Chemistry 4
	Tuesday	Chemistry 5a	.....	History 4 Horticulture 6	History 4 Horticulture 6	Chemistry 4	Chemistry 4
	Wednesday	Chemistry 5a	Animal Industry 2	English 5	French 4	Chemistry 4	Chemistry 4
	Thursday	.....	Horticulture 4	History 4 Horticulture 4	History 4 Horticulture 4	Animal Industry 2	Animal Industry 2
	Friday	Chemistry 5a	....	English 5	French 4	History 4	History 4
	Saturday	Zoölogy 4	Animal Industry 2	History 4 Horticulture 4	History 4	.....	....
Second.	Monday	.....	.....	Philosophy 1	French 5	Chemistry 4	Chemistry 4
	Tuesday	Animal Industry 3	History 5	History 5	Geology 1	Chemistry 4	Chemistry 4
	Wednesday	Chemistry 5b	English 6	Philosophy 1	French 5	Chemistry 4	Chemistry 4
	Thursday	Animal Industry 3	History 5	History 5	Geology 1	.....	....
	Friday	Chemistry 5b	English 6	Philosophy 1	French 5	Animal Industry 3	Animal Industry 3
	Saturday	Military Science 2	History 5	History 5	Geology 1	.....	.....
Third..	Monday	....	Geology 2	Geology 2	French 6	....	....
	Tuesday	Political Science 1	....	Animal Industry 4	English 7	History 3	History 3
	Wednesday	Political Science 1	Geology 2	Geology 2	French 6	....	.....
	Thursday	Political Science 1	....	Animal Industry 4	English 7	History 3	History 3
	Friday	Political Science 1	Geology 2	Geology 2	French 6	History 3	History 3
	Saturday	Political Science 1	....	Animal Industry 4	Military Science 2	.....	.....

AGRICULTURE.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First...	Monday	.....	.....	.....	.....	Animal Industry 5	.....
	Tuesday	.....	Political Science 2 & 3	English 8	Philosophy 2	Animal Industry 5	.....
	Wednesday	.....	Political Science 2 & 3	.....	.....	Animal Industry 5	Animal Industry 5
	Thursday	.....	Political Science 2 & 3	English 8	Philosophy 2	.....	.....
	Friday	.....	Political Science 2 & 3	.....	.....	.....	.....
	Saturday	.....	Political Science 2 & 3	English 8	Philosophy 2	.....	.....
Second.	Monday	.....	Animal Industry 6	.....	Political Science 6	Dairy Husbandry	Dairy Husbandry
	Tuesday	.....	Philosophy 4 or Mathematics 6	Philosophy 3	Adv. Polit. Sci. 4	Dairy Husbandry	Dairy Husbandry
	Wednesday	Animal Industry 6	Philosophy 4 or Mathematics 6	Horticulture 5	Political Science 6	Dairy Husbandry	Dairy Husbandry
	Thursday	.....	Philosophy 4 or Mathematics 6	Philosophy 3	Adv. Polit. Sci. 4	.....	.....
	Friday	Animal Industry 6	Philosophy 4 or Mathematics 6	Horticulture 5	... .	.....	Political Science 6
	Saturday	.....	Philosophy 4	Philosophy 3	Adv. Polit. Sci. 4	.....	.....
Third..	Monday	Animal Industry 7	....	Engineering 11	Philosophy 5	Horticulture 7	Horticulture 7
	Tuesday	Agronomy 6 or Horticulture 6	English 10	Meteorology 1	Political Science 5	English 10	English 10
	Wednesday	Horticulture 7	English 10	Engineering 11	Philosophy 5	.....	.....
	Thursday	Agronomy 6 or Horticulture 6	English 10	Meteorology 1	Political Science 5	.....	.....
	Friday	Horticulture 7	English 10	Engineering 11	Philosophy 5	.....	... .
	Saturday	Animal Industry 7	Philosophy 5	Meteorology 1	Political Science 5	.....	.....

ENGINEERING.— SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First....	Monday	.....	Drawing 3a	Drawing 3a	Drawing 3a	Shop-work 2a	Shop-work 2a
	Tuesday	Mathematics 4	.....	Physics 2	German 4	.....	.....
	Wednesday	Mathematics 4	.....	Drawing 3a	Drawing 3a	Shop-work 2a	Shop-work 2a
	Thursday	Mathematics 4	Military Science 2	Physics 2	German 4	.....	.....
	Friday	Mathematics 4	Engineering 2a	Engineering 2a	Engineering 2a	Shop-work 2a	Shop-work 2a
	Saturday	Mathematics 4	Engineering 2a	Physics 2	German 4	....	.....
Second..	Monday	... .	Drawing 3b	Drawing 3b	Drawing 3b	Shop-work 2b	Shop-work 2b
	Tuesday	Mathematics 5a	Engineering 2b	Physics 3 & 4	German 5	.....	.....
	Wednesday	Mathematics 5a	.....	Drawing 3b	Drawing 3b	Shop-work 2b	Shop-work 2b
	Thursday	Mathematics 5a	Military Science 2	Physics 3 & 4	German 5	....	.....
	Friday	Mathematics 5a	Engineering 2b	Engineering 2b	Engineering 2b	Shop-work 2b	Shop-work 2b
	Saturday	Mathematics 5a	.....	Physics 3 & 4	German 5	.....	.....
Third....	Monday	.....	Engineering 2c	Engineering 2c	Engineering 2c	Drawing 3c & 3d	Drawing 3c & 3d
	Tuesday	Mathematics 5b	.....	Physics 4	German 6	Drawing 3c & 3d	Drawing 3c & 3d
	Wednesday	Mathematics 5b	Engineering 2c	Engineering 2c	Engineering 2c	Drawing 3c & 3d	Drawing 3c & 3d
	Thursday	Mathematics 5b	Military Science 2	Physics 4	German 6	Drawing 3c & 3d	Drawing 3c & 3d
	Friday	Mathematics 5b	.....	.....	....	Drawing 3c & 3d	Drawing 3c & 3d
	Saturday	Mathematics 5b	.....	Physics 4	German 6	....	....

ENGINEERING.— JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	....	Engineering 7a	Chemistry 1	Physics 7a	Physics 5	Physics 5
	Tuesday	....	Engineering 3a	.....	Engineering 5a	Physics 5	Physics 5
	Wednesday	Military Science 2	Engineering 3a	Chemistry 1	Physics 7a	Physics 5	Physics 5
	Thursday	Engineering 7a	.....	.....	Engineering 5a	Shop-work 2d	Shop-work 2d
	Friday	Engineering 7a	Engineering 3a	Chemistry 1	Physics 7a	Shop-work 2d	Shop-work 2d
	Saturday	.....	Engineering 3a	.....	Engineering 5a	.....	.....
Second ..	Monday	.....	Engineering 7b	Chemistry 2	Physics 7b	Physics 6a	Physics 6a
	Tuesday	.....	Engineering 3b	.....	Engineering 5b	Physics 6a	Physics 6a
	Wednesday	Engineering 7b	Engineering 3b	Chemistry 2	Physics 7b	Physics 6a	Physics 6a
	Thursday	Engineering 7b	Engineering 3b	.....	Engineering 5b	Shop-work 2e	Shop-work 2e
	Friday	.....	.....	Chemistry 2	Physics 7b	Shop-work 2e	Shop-work 2e
	Saturday	Military Science 2	Engineering 3b	.....	Engineering 5b	.....	.....
Third ...	Monday	.....	Geology 2	Geology 2	Physics 7c	Physics 6b	Physics 6b
	Tuesday	Engineering 3c	.....	Engineering 5c	Engineering 7c	Physics 6b	Physics 6b
	Wednesday	Engineering 3c	Geology 2	Geology 2	Physics 7c	Physics 6b	Physics 6b
	Thursday	Engineering 3c	.....	Engineering 5c	Engineering 7c	Shop-work 2f	Shop-work 2f
	Friday	Engineering 3c	Geology 2	Geology 2	Physics 7c	Shop-work 2f	Shop-work 2f
	Saturday	.....	Engineering 7c	Engineering 5c	Military Science 2	.....	.....

MECHANICAL ENGINEERING.— SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	.....	.....	Engineering 4	French 4 or Engineer'g 6	Chemistry 4	Chemistry 4
	Tuesday	Engineering 4	.....	Engineering 6	.....	.....	.....
	Wednesday	.....	.....	Engineering 4	French 4	Chemistry 4	Chemistry 4
	Thursday	.....	Engineering 6	Engineering 4	.....	Engineering 8a	Engineering 8a
	Friday	Drawing 4d	Drawing 4d	Drawing 4d	French 4	Engineering 8a	Engineering 8a
	Saturday	Drawing 4d	Drawing 4d	Drawing 4d	.....	.....	.....
Second ..	Monday	.....	.....	.....	Engine'g 10a or French 5	Chemistry 4	Chemistry 4
	Tuesday	Engineering 9	.....	.....	.....	Chemistry 4	Chemistry 4
	Wednesday	.....	.....	Engineering 9	Engine'g 10a or French 5	Engineering 8b	Engineering 8b
	Thursday	.....	.....	Engineering 9	.....	Engineering 8b	Engineering 8b
	Friday	.....	.....	.....	Engine'g 10a or French 5	Engincering 8b	Engineering 8b
	Saturday	.....	.....	Engineering 9	.....	.....	.....
Third ...	Monday	.....	.....	.....	Engine'g 10b or French 6	Engineering 8c	Engineering 8c
	Tuesday	Political Science 1	.....	.....	.....	Engineering 8c	Engineering 8c
	Wednesday	Political Science 1	.....	.....	French 6	Thesis	Thesis
	Thursday	Political Science 1	.....	.....	.....	Thesis	Thesis
	Friday	Political Science 1	.....	.....	Engine'g 10b or French 6	Thesis	Thesis
	Saturday	Political Science 1	Engineering 10b	.....	.....	.....	.....

ELECTRICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	Engineering 12a	.....	Engineering 4	Engineering 6 or French 4	Chemistry 4	Chemistry 4
	Tuesday	Engineering 4	....	Engineering 6	Physics 7d	....	.....
	Wednesday	Engineering 12a	Physics 7d	Engineering 4	French 4	Chemistry 4	Chemistry 4
	Thursday	.....	Engineering 6	Engineering 4	Engineering 12a	Engineering 8a	Engineering 8a
	Friday	Drawing 4d	Drawing 4d	Drawing 4d	French 4	Engineering 8a	Engineering 8a
	Saturday	Drawing 4d	Drawing 4d	Drawing 4d	Physics 7d	.....	.....
Second..	Monday	.....	.....	Physics 7e	Engineering 10a or French 5	Chemistry 4	Chemistry 4
	Tuesday	.....	Physics 9a	Physics 9a	Engineering 12b	Chemistry 4	Chemistry 4
	Wednesday	.....	Engineering 12b	Physics 7e	Engineering 10a or French 5	Engineering 8b	Engineering 8b
	Thursday	.....	Physics 9a	Physics 9a	Engineering 12b	Engineering 8b	Engineering 8b
	Friday	.....	Engineering 12b	Physics 7e	Engineering 10a or French 5	Engineering 8b	Engineering 8b
	Saturday	Engineering 12b	.....	....	Engineering 12b	.....	.....
Third ...	Monday	....	Engineering 12c	.....	Engineering 10b or French 6	Engineering 8c	Engineering 8c
	Tuesday	Political Science 1	Engineering 12c	.....	.....	Engineering 8c	Engineering 8c
	Wednesday	Political Science 1	Thesis	Thesis	Engineering 10b or French 6	Physics 9b	Physics 9b
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Physics 9b	Physics 9b
	Friday	Political Science 1	Engineering 12c	.....	French 6	Thesis	Thesis
	Saturday	Political Science 1	Engineering 10b	....	Engineering 12c	.....	.....

TECHNICAL CHEMISTRY.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	.....	Drawing 3a	Drawing 3a Chemistry 1	Drawing 3a	....	....
	Tuesday	Mathematics 4	.....	Physics 2	German 4	.....	.....
	Wednesday	Mathematics 4	.....	Drawing 3a Chemistry 1	Drawing 3a	.....	.....
	Thursday	Mathematics 4	Military Science 2	Physics 2	German 4	....	.....
	Friday	Mathematics 4	.....	Chemistry 1	.....	.....	.....
	Saturday	Mathematics 4	....	Physics 2	German 4	.....	.....
Second..	Monday	.....	Drawing 3a	Drawing 3a Chemistry 2	Drawing 3a	.....	.....
	Tuesday	Mathematics 5a	.....	Physics 3 & 4	German 5	.....	.....
	Wednesday	Mathematics 5a	.....	Drawing 3a Chemistry 2	Drawing 3a	.....	.....
	Thursday	Mathematics 5a	Military Science 2	Physics 3 & 4	German 5	.....	.....
	Friday	Mathematics 5a	.....	Chemistry 2	.....	.....	....
	Saturday	Mathematics 5a	.....	Physics 3 & 4	German 5	.....	.....
Third....	Monday	.....	Geology 2	Geology 2	.....	.....	.....
	Tuesday	Mathematics 5b	.....	Physics 4	German 6	.....	....
	Wednesday	Mathematics 5b	Geology 2	Geology 2	Chemistry 3	.....	.....
	Thursday	Mathematics 5b	Military Science 2	Physics 4	German 6	.....	.....
	Friday	Mathematics 5b	Geology 2	Geology 2	Chemistry 3	.....	.....
	Saturday	Mathematics 5b	.....	Physics 4	German 6	.....	.....

TECHNICAL CHEMISTRY.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First ...	Monday	Military Science	Military Science 2	.....	French 4	Chemistry 4 & 7	Chemistry 4 & 7
	Tuesday	Chemistry 5a	Engineering 3a	.....	.....	Chemistry 4 & 7	Chemistry 4 & 7
	Wednesday	Chemistry 5a	Engineering 3a	.....	French 4	Chemistry 4 & 7	Chemistry 4 & 7
	Thursday	Shop-work 2a	Shop-work 2a	Shop-work 2a	Shop-work 2a	Chemistry 4 & 7	Chemistry 4 & 7
	Friday	Chemistry 5a	Engineering 3a	.....	French 4	Chemistry 4 & 7	Chemistry 4 & 7
	Saturday	....	Engineering 3a	Chemistry 4 & 7	Chemistry 4 & 7	.....	.....
Second..	Monday	.....	Chemistry 7	Chemistry 7	French 5	Chemistry 7	Chemistry 7
	Tuesday	.....	Engineering 3b	Chemistry 6a	.....	Chemistry 7	Chemistry 7
	Wednesday	.....	Engineering 3b	Chemistry 6a	French 5	Chemistry 7	Chemistry 7
	Thursday	.....	Engineering 3b	.....	.....	Chemistry 7	Chemistry 7
	Friday	Chemistry 7	Chemistry 7	Chemistry 7	French 5	Chemistry 7	Chemistry 7
	Saturday	Military Science 2	Engineering 3b	.....	....	....	.....
Third....	Monday	.....	Chemistry 7	.....	French 6	Chemistry 7	Chemistry 7
	Tuesday	Engineering 3c	.....	.....	Chemistry 6b	Chemistry 7	Chemistry 7
	Wednesday	Engineering 3c	.....	.....	French 6	Chemistry 7	Chemistry 7
	Thursday	Engineering 3c	Chemistry 7	Chemistry 7	Chemistry 6b	Chemistry 7	Chemistry 7
	Friday	Engineering 3c	....	.....	French 6	Chemistry 7	Chemistry 7
	Saturday	Military Science 2	Chemistry 7	Chemistry 7	Military Sci. 2	.....	.....

TECHNICAL CHEMISTRY.—SENIOR CLASS.

TERM	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First....	Monday	.....	.....	.....	Physics 8a	Chemistry 7	Chemistry 7
	Tuesday	Chemistry 7	Chemistry 7	Chemistry 7	Engineering 5a	Chemistry 8	Chemistry 8
	Wednesday	Physics 8a	Chemistry 7	Chemistry 7	....	Chemistry 7	Chemistry 7
	Thursday	.....	Chemistry 7	Chemistry 7	Engineering 5a	Chemistry 8	Chemistry 8
	Friday	.....	Chemistry 7	Chemistry 7	Physics 8a	Chemistry 7	Chemistry 7
	Saturday	....	Chemistry 9	.....	Engineering 5a	.....	.....
Second..	Monday	.....	.....	.....	Physics 8b	.....	.....
	Tuesday	....	.....	Chemistry 10a	Engineering 5b	.....	.....
	Wednesday	Chemistry 7	and	Thesis	Physics 8b	.....	.....
	Thursday	.....	.....	Chemistry 10a	Engineering 5b	Chemistry 7	and Thesis
	Friday	Chemistry 7	and	Thesis	Physics 8b	.....	.....
	Saturday	Chemistry 7	and Thesis	Chemistry 9	Engineering 5b	Chemistry 7	and Thesis
Third...	Monday	... .	.....	.....	.....	Chemistry 7	and Thesis
	Tuesday	Political Science 1	.....	Meteorology 1	Chemistry 10b	Chemistry 7	and Thesis
	Wednesday	Political Science 1	....	... .	.....	Chemistry 7	and Thesis
	Thursday	Political Science 1	....	Meteorology 1	Chemistry 10b	Chemistry 7	and Thesis
	Friday	Political Science 1	.....	.....	.....	Chemistry 7	and Thesis
	Saturday	Political Science 1	.....	Meteorology 1	Chemistry 9	.....	.....

GENERAL COURSE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First ...	Monday	.....	.....	Chemistry 1	.....	Zoölogy 1	Zoölogy 1
	Tuesday	Mathematics 4	.....	Physics 2	German 4	History 1 or 4	History 1 or 4
	Wednesday	Mathematics 4	.....	Chemistry 1	History 1 or 4	Zoölogy 1	Zoölogy 1
	Thursday	Military Science 2 Mathematics 4	Military Science 2	Physics 2	German 4	History 1 or 4	History 1 or 4
	Friday	Mathematics 4	History 1 or 4	Chemistry 1	....	Zoölogy 1	Zoölogy 1
	Saturday	Mathematics 4	.....	Physics 2	German 4	.....	.....
Second..	Monday	....	.....	Chemistry 2	English 10	History 2 or 5	History 2 or 5
	Tuesday	Mathematics 5a Military Science 2	Forestry 1 Military Science 2	Physics 3 & 4	German 5	History 2 or 5	History 2 or 5
	Wednesday	Mathematics 5a Drawing 2a	Drawing 2a	Chemistry 2	English 10	Zoölogy 2	Zoölogy 2
	Thursday	Mathematics 5a	Forestry 1	Physics 3 & 4	German 5	Forestry 1	Forestry 1
	Friday	Mathematics 5a Drawing 2a	Drawing 2a	Chemistry 2	History 2 or 5	Zoölogy 2	Zoölogy 2
	Saturday	Mathematics 5a	.....	Physics 3 & 4	German 5	.....	.....
Third ...	Monday	.....	Drawing 2b	Drawing 2b	History 3 or 6	Zoölogy 3	Zoölogy 3
	Tuesday	Mathematics 5b	.....	Physics 4	German 6	English 11	English 11
	Wednesday	Mathematics 5b Military Science 2	Drawing 2b Military Science 2	Drawing 2b	Chemistry 3	Zoölogy 3	Zoölogy 3
	Thursday	Mathematics 5b	English 11	Physics 4	German 6	History 3 or 6	History 3 or 6
	Friday	Mathematics 5b	Drawing 2b	Drawing 2b	Chemistry 3	History 3 or 6 Zoölogy 3	History 3 or 6 Zoölogy 3
	Saturday	Mathematics 5b	.....	Physics 4	German 6	....	.....

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First....	Monday	.....	Military Science 2	English 5	French 4	Chemistry 4 Physics 5	Chemistry 4 Physics 5
	Tuesday	Drawing 5a Chemistry 5a	Drawing 5a	History 7	History 7	Chemistry 4 Physics 5	Chemistry 4 Physics 5
	Wednesday	Chemistry 5a German 7 Military Science 2	.....	English 5	French 4	Chemistry 4 Physics 5	Chemistry 4 Physics 5
	Thursday	.....	Drawing 5a	History 7	History 7	Drawing 5a	Drawing 5a
	Friday	Chemistry 5a German 7	.....	English 5	French 4	History 7	History 7
	Saturday	Zoölogy 4	.....	History 7	History 7	.....	.....
Second..	Monday	.....	.....	Philosophy 1	French 5	Chemistry 4 Physics 6a	Chemistry 4 Physics 6a
	Tuesday	Drawing 5b Chemistry 5b	History 8	History 8	Geology 1	Chemistry 4 Physics 6a	Chemistry 4 Physics 6a
	Wednesday	German 8	English 6	Philosophy 1	French 5	Chemistry 4 Physics 6a	Chemistry 4 Physics 6a
	Thursday	Drawing 5b	History 8	History 8	Geology 1	Drawing 5b	Drawing 5b
	Friday	Chemistry 5b German 8	English 6	Philosophy 1	French 5	Drawing 5b	Drawing 5b
	Saturday	Drawing 5b	History 8	History 8	Geology 1	Chemistry 7 Physics 6b	Chemistry 7 Physics 6b
Third ..	Monday	.....	Geology 2	Geology 2	French 6	Chemistry 7 Physics 6b	Chemistry 7 Physics 6b
	Tuesday	Political Science 1	Drawing 5c	Drawing 5c	English 7	Chemistry 7 Physics 6b	Chemistry 7 Physics 6b
	Wednesday	German 9 Political Science 1	Geology 2	Geology 2	French 6	.....	.....
	Thursday	Political Science 1	Drawing 5c	Drawing 5c	English 7	.....	.....
	Friday	German 9 Political Science 1	Geology 2	Geology 2	French 6	.....	.....
	Saturday	Political Science 1	Drawing 5c	Drawing 5c	Military Science 2	.....	.....

GENERAL COURSE.—

Term	Day	8–9	9–10	10–11
First ..	Monday			French 7
	Tuesday		Political Science 3 Political Science 2	English 8
	Wednesday		Political Science 3 Political Science 2	French 7
	Thursday		Political Science 3	English 8
	Friday			French 7
	Saturday		Political Science 2 Political Science 3	English 8
Second	Monday			French 8
	Tuesday		Philosophy 4 Mathematics 6	Philosophy 3
	Wednesday		Philosophy 4 Mathematics 6	French 8
	Thursday		Philosophy 4 Mathematics 6	Philosophy 3
	Friday		Philosophy 4 Mathematics 6	French 8
	Saturday		Philosophy 4	Philosophy 3
Third .	Monday			Engineering 11 French 9
	Tuesday		English 9	Meteorology 1
	Wednesday		English 9	Engineering 11 French 9
	Thursday		English 9	Meteorology 1
	Friday		English 9	Engineering 11 French 9
	Saturday		Philosophy 5	Meteorology 1

SENIOR CLASS.

Day	11–11.50	1.30–2.30	2.30–4
Monday		Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7	Chemistry 7
Tuesday	Philosophy 2	Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7	Chemistry 7
Wednesday		Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7	Chemistry 7
Thursday	Philosophy 2	Zoölogy 6	Zoölogy 6
Friday	Political Science 2		
	Political Science 3		
Saturday	Philosophy 2		
Monday	Political Science 6	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
Tuesday	Political Science 4	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
Wednesday	Political Science 6	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
Thursday	Political Science 4		
Friday			Political Science 6
Saturday	Political Science 4		
Monday	Philosophy 5	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
Tuesday	Political Science 5	English 9	English 9
Wednesday	Philosophy 5	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
Thursday	Political Science 5		
Friday	Philosophy 5	Chemistry 7	Chemistry 7
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
Saturday	Political Science 5		

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the legislature of 1895. It is devoted to the study of practical and theoretical agriculture, and the natural sciences which are closely related to successful farming. At least ten hours each week are spent in practical exercises, which, so far as possible, are educational in their nature. This work is done on the farm, or in the garden, barn, greenhouse, or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, and the geography and history of the United States." A certificate will be awarded for its completion.

OUTLINE OF STUDIES.

First Year.

FIRST TERM.

	Exercises per week.
Elements of Agriculture—Agronomy 1	4
Principles of Plant Growth—Horticulture *a*	4
Algebra	3
Grammar—English Grammar and Composition	2
Drawing	2
Animal Husbandry	2
Military Tactics—Military Science 2	1

SECOND TERM.

Dairying	4
Animal Husbandry	5
Algebra	2
Grammar	3
Chemistry	2
Drawing	2
Military Tactics—Military Science 2	1

THIRD TERM.

Botany	5
Commercial Fertilizers	2
Physics	6
Algebra	2
Animal Husbandry	2
Military Tactics—Military Science 2	1

SECOND YEAR.

FIRST TERM.

Farm Equipment—Agronomy 3	3
Vegetable Growing—Horticulture *b*	3
Introductory Zoölogy—Zoölogy 1	3
English	3
Geometry	4
Fruit Growing—Horticulture *d*	3
Military Tactics—Military Science 2	1

SECOND TERM.

Soil Physics—Agronomy 4	4
Winter Gardening—Horticulture *c*	2
Arboriculture and Forestry—Forestry *a*	2
Comparative Anatomy—Zoölogy 5	1
Animal Biology—Zoölogy 2	2
English	3
Geometry	4
Farm Bookkeeping	3
Military Tactics—Military Science 2	1

THIRD TERM.

Stock Feeding—Animal Husbandry 2	3
Fruit Growing	4
Entomology—Zoölogy 3	3
English	2
Plant Diseases—Botany 2	2
Farm Crops—Agronomy 5	3
Military Tactics—Military Science 2	1

NOTE. The schedule of hours will be posted on the bulletin board.

TEN WEEKS' WINTER COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 6, and continuing until Friday, March 20, 1903.

No entrance examination is required, but students taking the course should possess a common school education.

The studies offered are dairying, stock-feeding, winter-gardening, wood-working, forestry, and entomology, with practice in the creamery, barn, greenhouse, or wood-shop.

A fee of five dollars will be charged for tuition.

The expense of the course may be estimated as follows:

Room and board, ten weeks, at $4 . .	$40.00
Tuition fee	5.00
Books	3.00
Total	$48.00

Applicants should report at the president's office, Thompson Hall, Durham, on Tuesday, January 6, 1903.

NESMITH HALL—THE EXPERIMENT STATION BUILDING.

JOHN CRERAR
LIBRARY.

TEN WEEKS' COURSE IN DAIRYING.

This course is offered in connection with the Winter Course in Agriculture, to young men who wish to make a specialty of dairying. It is designed for those who are specially desirous of mastering the art of butter-making, or who wish to become fitted for the position of manager or superintendent of a creamery. In New Hampshire, where dairying is carried on to a great extent in the sale of milk for the city markets, this course is especially valuable as a training for those operating farm-dairies.

The Course in Dairying begins January 6, 1903, and closes March 20. The subjects taught are butter-making, milk-testing, pasteurzing milk and cream, dairy bacteriology, dairy farming, dairy chemistry, and care of steam engines and boilers.

The creamery is equipped with separator, milk-tester, pasteurizer, and all tools required in making butter and preparing milk and cream for market.

Requirements for admission are the same as for the Winter Course in Agriculture.

ESTIMATE OF EXPENSES.

Room rent, ten weeks at $1.00	$10.00
Board, ten weeks, at $3.00	30.00
Fee	5.00
Books	3.00
Total	$48.00

For circulars or further information concerning these courses address New Hampshire College, Durham, N. H.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of fifteen thousand dollars.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1902.

On Commencement Day, June 4, 1902, the following degrees were conferred:

Bachelors of Science.

in agriculture.

John Chester Kendall, Peterborough.
Abiel Abbott Livermore, Wilton.
George Enoch Merrill, Newburyport, Mass.
Eugene Pierce Runlett, Durham.

in technical chemistry.

Arthur Lyon Sullivan, Suncook.

in mechanical engineering.

Edwin W. Gilmartin, Nashua.
Charles Abbott Payne, Portsmouth.

in general course.

Mary Doe, Rollinsford.

Master of Science.

Albert F. Conradi, Durham.

Honorary Degrees.

The degree of M. Sc. was conferred upon—

Hon. David H. Goodell, Antrim.
Hon. Frank Jones,* Portsmouth.
Hon. John D. Lyman,* Exeter.
Hon. John W. Sanborn, Wakefield.
Hon. Charles H. Sawyer, Dover.
Hon. Joseph B. Walker, Concord.

*Deceased.

Certificates.

Certificates of graduation from the two years' course in agriculture were awarded to—

George R. Brew, Durham.
Carroll Winfred Farr, North Weare.
George Fletcher Hills, Hollis.
Walter Eugene Quinby, Deerfield.
Walter Phelps Tenney, Chester.
Robert Eben Whittier, Deerfield.
Edward Carlyle Wilson, Wilton.

PRIZE RECORD FOR 1902.

SMYTH PRIZES.

Given by Hon. Frederick Smyth.

Speaking:

1st. Alfred Conner.
2d. Melvin J. White.
3d. Carroll W. Farr.

Reading:

1st. Castine C. Swanson.
2d. Charles E. Robertson.

BAILEY PRIZE.

Given by Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene.

Arthur Lyon Sullivan.

ERSKINE MASON MEMORIAL PRIZE.

Mary Doe.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Edwin W. Gilmartin.

WINNER OF INDIVIDUAL PRIZE DRILL.

Wilfred Gordon Brierly.

HONORABLE MENTION.

Elmer Seth Savage.

The Valentine Smith scholarships are held by

Morris A. Stewart, '03.
Arthur L. Fuller, '04.
William O. Robinson, '05.
John D. Clark, '06.

ROSTER OF THE BATTALION OF CADETS.

For 1902-1903.

Commandant, Captain V. A. Caldwell,
Seventh Infantry U. S. A.

Major E. W. Burbeck.

First Lieutenant and Adjutant M. J. White.

Company A.	Company B.
Capt. H. D. Batchelor.	Capt. E. F. Bickford.
1st Lieut. D. A. Watson.	1st Lieut. T. J. Laton.
2d Lieut W. A. Barker.	2d Lieut. P. A. Campbell.
Sergeants.	**Sergeants.**
First Sergt. A. L. Fuller.	First Sergt. L. Ashton.
Sergt. S. A. Richardson.	Sergt. J. E. Goodrich.
Sergt. B. De B. Bradford.	Sergt. W. G. Brierly.
Corporals.	**Corporals.**
E. D. Savage.	F. R. Pickering.
C. W. Farr.	G. H. Hill.
H. J. Pettee.	J. L. Randall.
C. O. Dodge.	D. A. A. Durward.
	S. B. Hayden.
Musician.	**Musician.**
E. E. Hall.	R. M. Osborne.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course: *m e*—Mechanical Engineering; *e e*—Electrical Engineering. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

PAST GRADUATE.

Name.	Residence.	Subject.
Runlett, Eugene Pierce	*Durham.*	Botany

SENIORS.

Name.	Residence.	Room.
Batchelor, Harry David *c*	*West Upton, Mass.*	Kappa Sigma House
Bickford, Edgar Forest *e e*	*Rochester.*	Thompson Hall
Brown, Frank Ray *m e*	*Durham.*	Mr. Brown's
Burbeck, Everett William *m e*	*Haverhill.*	Kappa Sigma House
Davis, Everett Garfield *a*	*Newmarket.*	Newmarket
Rollins, Ralph Harvey *m e*	*E. Concord.*	Kappa Sigma House
Stewart, Morris Archer *c*	*Dover.*	DeMeritt Hall
Watson, David Albert *a*	*Durham*	Mr. Watson's
White, Melvin Johnson *g*	*Farmington.*	Kappa Sigma House

Total, 9.

JUNIORS.

Name.	Residence.	Room.
Ashton, Leander *a*	*Pittsfield.*	Kappa Sigma House
Barker, Walter Allen *e e*	*Pittsfield.*	Mr. Hancock's
Campbell, Percy Anderson *a*	*Litchfield.*	Kappa Sigma House
Fuller, Arthur Levi *m e*	*Marlborough Depot.*	Kappa Sigma House
Goodrich, Joseph Ezra *a*	*New Durham.*	The Mystic
Hill, George Herbert *m e*	*Pittsfield.*	The Mystic
Laton, Thomas Jefferson *m e*	*Nashua.*	Kappa Sigma House
Littlefield, Erwin Melvin *e e*	*Dover.*	Nesmith Hall
Merrill, Arthur Ronello *a*	*No. Bridgton, Me.*	DeMeritt Hall
Pickering, Fred Roberts *e e*	*Barnstead.*	Mr. Hancock's

Total, 10.

SOPHOMORES.

Name.	Residence.	Room.
Bickford, Edgar Charles *e*	*Durham.*	Mr. Bickford's
Bradford, Baury de Bellerive *e*	*Portsmouth.*	Meserve Hall
Brierley, Wilfrid Gordon *a*	*Dover.*	DeMeritt Hall
Chesley, John Henry *g*	*Rockingham.*	Rockingham
Conner, Alfred *g*	*Newfields.*	Newfields
Dearborn, Jenness Stevens *a*	*Suncook.*	DeMeritt Hall
Dodge, Cleon Orestes *c*	*Sunapee.*	Mrs. Sanders's
Haley, Waldron Butler *e*	*East Barrington.*	Kappa Sigma House
Haley, Sumner Abbott *g*	*East Barrington.*	Kappa Sigma House
Hayden, Silas Bryden *e*	*So. Natick, Mass.*	Kappa Sigma House
Hayes, Chauncey Warren *c*	*Durham.*	Mr. Hayes's
Hayes, Harry Linwood *e*	*Exeter.*	Exeter
Heath, Fred Harvey *c*	*Warner.*	Prof. Scott's
Hill, Frank Lester *a*	*Amherst.*	Kappa Sigma House
Knight, Harold Nims	*Marlborough.*	Mr. Schoonmaker's
Lunt, Raymond Louis	*Dover.*	Nesmith Hall
Moreton, Joseph Wesley *e*	*Medford, Mass.*	The Mystic
Otis, Albert Noah *e*	*Durham.*	DeMeritt Hall
Pettee, Horace James *e*	*Durham.*	Prof. Pettee's
Putney, Fred Silver *g*	*Hopkinton.*	Prof. Scott's
Randall, John Leslie *a*	*Lee.*	Lee
Richardson, Samuel Ambrose *e*	*Charlestown.*	The Mystic
Robinson, William Orrin *a*	*Marlborough.*	Mr. Schoonmaker's
Russell, Harry Union *c*	*West Derry.*	Pinkerton Hall
Savage, Elmer Seth *a*	*Lancaster.*	Kappa Sigma House
Swanson, Castine Caroline *g*	*Cambridge, Mass.*	Mr. Hayes's
Tinkham, Frank Alvin *a*	*Grafton.*	Prof. Parsons's
True, Henry Olin *a*	*East Haverhill.*	Prof. Parsons's
Wiggin, Josiah Benjamin *e*	*Andover.*	Prof. Scott's

Total, 29.

FRESHMEN.

Name.	Residence.	Room.
Adams, Samuel Taylor	*Pittsfield.*	Mr. Hancock's
Armstrong, Percy Edwin	*Milford.*	Mr. Schoonmaker's
Balch, Ivon Augustus	*Antrim.*	Pettee's Block
Batchelder, Charles	*So. Hampton.*	Mr. Schoonmaker's
Barnes, Stuart Kenrick	*Walpole.*	DeMeritt Hall
Belleville, William Edward	*Hinsdale.*	Pettee's Block
Black, Dennis Leo	*Nashua.*	DeMeritt Hall
Berry, Elverton Cloutman	*Farmington.*	Farmington

Burnham, Rayworth	*Antrim.*	Pettee's Block
Campbell, Samuel Francis	*Windham.*	Pinkerton Hall
Campbell, Willis Cassius	*Windham.*	Pinkerton Hall
Clement, Clarence Elbert	*Derry.*	Pinkerton Hall
Clark, John Dustin	*Nashua.*	DeMeritt Hall
Converse, Ernest Luther	*Amherst.*	Mr. Sawyer's
Crawford, Elizabeth Blaine	*Southbridge, Mass.*	Prof. Nesbit's
Davison, Earl B.	*Lisbon.*	DeMeritt Hall
Dearborn, Joseph Jewell	*Suncook.*	DeMeritt Hall
Densmore, Frank Benjamin	*No. Charlestown.*	Mrs. Sanders's
Durward, David A. A.	*Claremont.*	Mrs. Sanders's
Edwards, Frank Andrew	*New Boston.*	Mrs. John Thompson's
Farr, Carroll Winfred	*No. Weare.*	Mrs. Sanders's
Fish, Ralph Brown	*Kensington.*	Mr. Schoonmaker's
Foss, Grace Tamson	*Durham.*	Mr. Foss's
Franklin, Neil Starr	*Bernardston, Mass.*	Mrs. Morse's
Fuller, Carl Tilson	*Nashua.*	Pettee's Block
Garland, Albert Raymond	*Farmington.*	Kappa Sigma House
George, Henry Clinton	*Newmarket.*	Newmarket
Gooch, William Safford	*Exeter.*	Exeter
Gooch, George Webster	*Exeter.*	Exeter
Gowen, Ralph Edward	*Stratham.*	The Mystic
Hardy, Edwin Davis	*Nashua.*	Pettee's Block
Hall, Erie Earle	*East Barrington.*	Mr. George Stevens's
Johnson, Montague	*Nashua.*	DeMeritt Hall
Jenness, Cyrus Fremont	*Gonic.*	Kappa Sigma House
Lamson, Charles James Frank	*Exeter.*	Exeter
Marden, Walter Leroy	*Portsmouth.*	Meserve Hall
Merrifield, Charles Henry	*Charlestown.*	Mr. Meserve's
Mudgett, Orlo Dudley	*Gilmanton.*	Thompson Hall
Norwood, Edgar A.	*Rockport.*	
Osborne, Raymond Marden	*Peterborough.*	Pettee's Block
Pierce, Butler Libby	*Enfield Center.*	Prof. Scott's
Pike, Mahlon Arthur	*Dover.*	Meserve Hall
Purrington, Wallace Fuller	*So. Yarmouth, Mass.*	Mr. Morse's
Reed, Ralph Samuel	*Worcester, Mass.*	DeMeritt Hall
Roberts, Edwin Jay	*Laconia.*	Dr. Grant's
Roberts, Ernest Raymond	*Rollinsford.*	DeMeritt Hall
Small, William Clifford	*Nashua.*	DeMeritt Hall
Swain, Roy Vance	*Barrington.*	Dover
Whittle, William Thurston	*Antrim.*	Pettee's Block
Woodward, Julius Seth	*Woodsville.*	DeMeritt Hall

Total, 50.

TWO YEARS' COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Brierley, Harry Garfield	*Dover.*	DeMeritt Hall
Manning, George Grover	*Boston, Mass.*	DeMeritt Hall
Nixon, James Henry	*East Brentwood.*	The Mystic
Swain, Roscoe Franklin	*So. Hampton.*	So. Hampton

Total, 4.

FIRST YEAR.

Batchelder, Erland Graves	*Wilton.*	Mr. Bickford
Fiske, Harry Martin	*Temple.*	
Flint, Wesley Pillsbury	*South Hampton.*	The Mystic
Sanborn, Ernest Noyes	*Laconia.*	
Shurbert, Henry Marston	*Northwood Ridge.*	
Smyth, Harry Wilson	*West Concord.*	

Total, 6.

SPECIAL COURSE.

Dunham, L. Helen	*Durham.*	Zoölogy and Mathematics
Dunham, Samuel Ellis	*Durham.*	Mechanical Engineering
Little, Ralph Dearborn	*Salisbury.*	Shopwork
Shenton, Charles Marshall	*Nashua.*	Pettee's Block

Total, 4.

DAIRY COURSE.

Name.	Residence.	Room.
Fish, Ralph Brown	*Kensington.*	
Holt, Harry Walter	*South Lyndeborough.*	
Jones, William Marlin	*Wentworth.*	
Kendall, Louis E.	*Peterborough.*	
Pearson, Frederick C.	*Somersworth.*	
Savage, Arthur Barron	*Milford.*	
Westgate, Frank M.	*Pike's Station.*	
Woodbury, Frank Pliny	*Durham.*	

Total, 8.

SUMMARY.

Graduate Student	1
Seniors	9
Juniors	10
Sophomores	29
Freshmen	50
Students in Two Years' Course	10
Students in Dairy Course	8
Special Students	4
Total	111

ERRATA.

Change to Sophomore Class,
Mudgett, Orlo Dudley.

Change to Senior Class,
Otis, Albert Noah, *e e.*

TWO YEARS' COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Brierley, Harry Garfield	*Dover.*	DeMeritt Hall
Manning, George Grover	*Boston, Mass.*	DeMeritt Hall
Nixon, James Henry	*East Brentwood.*	The Mystic
Swain, Roscoe Franklin	*So. Hampton.*	So. Hampton

Total, 4.

FIRST YEAR.

Batchelder, Erland Graves	*Wilton.*	Mr. Bickford
Shenton, Charles Marshall	*Nashua.*	Pettee's Block

Total, 4.

DAIRY COURSE.

Name.	Residence.	Room.
Fish, Ralph Brown	*Kensington.*	
Holt, Harry Walter	*South Lyndeborough.*	
Jones, William Marlin	*Wentworth.*	
Kendall, Louis E.	*Peterborough.*	
Pearson, Frederick C.	*Somersworth.*	
Savage, Arthur Barron	*Milford.*	
Westgate, Frank M.	*Pike's Station.*	
Woodbury, Frank Pliny	*Durham.*	

Total, 8.

SUMMARY.

Graduate Student	1
Seniors	9
Juniors	10
Sophomores	29
Freshmen	50
Students in Two Years' Course	10
Students in Dairy Course	8
Special Students	4
Total	111

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer. *P. O. Box 39, Concord.*

Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.

Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

Edwin Bartlett, Bath. Harness Business.

Frank Alexander White, Bow. Farmer. *Route 4, Concord.*

2—

1873.

Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885), Principal of High School. *Campbell, Cal.*

Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Pastor of Cong'l Church. *West Townshend, Vt.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company. *East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician. *206 So. Main Street, Ottawa, Kansas.*

Harvey Jewell, Winchester. Fruit Grower and Market Gardener. *Cromwell, Conn.*

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon. Merchant. *Kimball, Minn.*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist. *287 Church Street, Keene.*

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street Roslindale, Mass.*

11—*2

1876.

Herbert Cyril Aldrich, Troy. Real Estate and Orange Grower. *Cypress Avenue, Ridlands, Cal.*

Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer. *North Montpelier, Vt.*

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., Chicago, Ill. *6542 Kimbark Avenue, Chicago, Ill.*

Anson Ballard Cross, Holyoke, Mass. Contractor and builder. *Wilmington, Vt.*

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co. *Box 56, Gardner, Mass.*

7—

1877.

Rollin Kirk Adair, Indian Territory. Merchant. *Chelsea, Indian Ter.*

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. School Supt. and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (State Univ., Iowa, 1880), Keene.

William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer. *East Westmoreland.*

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher. *608 Washington Street, Boston, Mass.*

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company. *Board of Trade Building, 113 State Street, Boston, Mass.*

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer.
Bracken, Comal Co., Texas.

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.
13—*4

1878.

Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder (Greenhouses a specialty). *73 Green Street, Leominster, Mass.*
3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer. *Springfield, Vt.*

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler, 23 Union St. Concord, N. H. *Acworth.*

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician. *306 Walnut Street, Newtonville, Mass.*
6—*1

1880.

Charles Harvey Hood, Derry, Milk Business.
2 Benton Road, Somerville, Mass.
1—

1881.

Edwin Thomas Aldrich, Troy. General Insurance Agent.
Bridgmans Block, Keene.

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin, Bristol, Harwinton, Conn. Miller and Farmer.
Ascutneyville, Vt.

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 186), Proctorsville, Vt. Attorney at Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener.
Bethlehem.

Frank P. Marston, Hartford, Vt. With International Paper Company.
Wilder, Vt.

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Durham.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney at Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. *Cliff Street, Malden, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director, United States Weather Bureau. *State University, Lincoln, Neb.*

John Wright Mason. Hanover.

Harlan Addison Nichols, Derry. County Physician. *Fort Stockton, Tex.*

*Frank Elmer Thompson. Stark.

9—*1

1883.

Elmore Ferdinand Arnold, M. D. (University City of New York, 1885), Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883–86. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Electrical Engineer, Foreign Department Ceneral Electric Company, 44 Broad Street, N. Y. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer. *Logan, Ohio.*

Frederick Plummer Comings, Lee. Trustee, 1893—Principal High School, South Yarmouth, Mass. *Lee.*

Frank Harry Follansbee, Canaan. Railway Mail Clerk.
41 Sharon Street, West Medford, Mass.

Adams Clark French, Franklin Falls.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer. *Cavendish, Vt.*

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Registered Druggist. *Woodstock, Vt.*

William Lincoln Whittier, Deerfield. Machinist.
8 Hardy Street, Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher of Science, Corsicana High School. *Corsicana, Texas.*

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Dealer in Real Estate, and Farmer. *Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Assistant Editor Monthly Weather Review. U. S. Weather Bureau.
Washington, D. C.

Moses Bisbee Mann, Benton. Inspector of Customs.
11 Hancock Street, Malden, Mass.

George Milton Moore, Plymouth, Vt. Real Estate, Insurance Agent.
Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions.
587–593 Washington Street, Dorchester, and 529–533 Dudley Street, Roxbury, Mass.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau.
5 Allen Street, San Juan, P. R.

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant. *Vernal, Utah.*

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895–97. Farm Superintendent. *Box 173, North Uxbridge, Mass.*

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes, Ill. *Office 50 78th Street, Chicago, Ill.*

Edward Alonzo Bailey, West Swanzey. With George Holbrook & Co.
55 Pine Street, Keene, N. H.

Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. With North British and Mercantile Fire Insurance Company, 76 William Street, New York City.
Hempstead, N. Y.

Paul Cuff Brooks, Boston, Mass.

Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney at Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890–94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine 1897, 1898), South Lee. Physician. *815 Beacon Street, Boston, Mass.*

James Ellsworth Harvey, Surry. Photographer. *Clinton, Mass.*

Belezar Stoianoff Ruevsky, Sistova, Bùlgaria. Employé du governement à la Direction de la Statistique. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *95 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney at Law.
146 Main Street, Nashua.

George Pillsbury Wood, Lebanon. Draftsman and Clerk, Department of the Navy. *3407 Holmead Avenue, Washington, D. C.*

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecast Official in charge U. S. Weather Bureau Office. *U. S. Weather Bureau, Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Chief Inspector Stock Insurance Companies.
240 La Salle Street, Chicago, Ill.

George Albert Sanborn, Rochester. Salesman for Grand Union Tea Company. *Rochester.*

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt.; Member Am. Soc. C. E.; Chief Engineer San Diego Land and Town Company; Chief Engineer National City and Otay Railway Company; Chief Engineer in charge Sweetwater Water Company; Consulting Engineer Southern California Mountain Water Company; Consulting Engineer General Practice. *National City, Cal.*

Bion Leland Waldron, Strafford. Observer U. S. Weather Bureau.
Columbus, Ohio.

5—

1888.

Melvin Burnside Carr, North Haverhill.

Herbert Grant Davis, South Lee. Manager St. Lawrence Gas, Electric, and Transportation Company. *1 Ford Street, Ogdensburg, N. Y.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt., Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer with Warnig, Chipman & Farquhar. *874 Broadway, New York, N. Y.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau, in charge Columbus, Ohio, and of Ohio Section. Special Lecturer in Meteorology at Ohio State University. *Columbus, Ohio.*

George Elwin Walker, Littleton. Farmer. *Littleton.*

9—

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*

Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673–1679 Washington Street, Boston, 529–535 Dudley Street, Roxbury, and 587–593 Washington Street, Dorchester, Mass. *6 Worcester Square, Boston, Mass.*

Charles Walter Earl Scott, Winchester. Mechanic. *Darrington, Wash.*

David Elmer Stone, Hartford, Vt. Grain Merchant. *Framingham Center, Mass.*

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department. *56 Carmel Street, New Haven, Conn.*

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Civil Engineer. Metropolitan Water Board, Boston. Dam and Aqueduct Department, Clinton, Mass. *402 Chestnut Street, Clinton, Mass.*

Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Bookkeeper with N. E. Hollis, Boston, Mass. *11 Windsor Road, West Somerville, Mass.*

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant under firm name E. G. Cole & Co. *Hampton.*

Russell Marden Everett, Chester. Lawyer. *172 Market Street, Newark, N. J.*

Edward Payson Stone, Canaan Center. Chemist With Baton Rouge Sugar Company. *Baton Rouge, La.*

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Assistant Division Engineer, Pennsylvania Division, N. Y. C. & H. R. R. R. *Jersey Shore, Penn.*

Fred Driggs Fuller, Hanover. Assistant Chemist, New York Agricultural Experiment Station. *84 Lyceum Street, Geneva, N. Y.*

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott. *49 Pearl Street, Hartford, Conn.*

4—

1893.

Wilton Everett Britton, Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station. *1317 Boulevard, New Haven, Conn.*

Frank John Bryant, Enfield. Teacher. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor. *13–21 Park Row Building, New York City.*

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Heating and Ventilating Engineer, 93 Federal Street, Instructor in heating and Ventilation in American Correspondence School, 156 Tremont Street, Boston, Mass. *283 Central Street, Auburndale, Mass.*

Orrin Moses James, Northwood. Civil Engineer and Surveyor. *Northwood Narrows.*

Arthur Whitmore Smith, M. S. (Wesleyan University, 1895), Norwich, Vt. Instructor in Physics and Electrical Engineering, Tulane University of Louisiana. *New Orleans, La.*

6—

1894.

Bert Sargent Brown, Hanover. Livery Stable Proprietor. *Hanover.*

Fred Willis Gunn, Keene. Farmer and Fruit Grower. *Keene.*

Frederic William Howe, Hollis. Professor of Chemistry. *State Normal School, Framingham, Mass.*

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company. *56 Pine Street, Bellows Falls, Vt.*

Frank Clifton Britton, Keene. Superintendent Belchertown Coöperative Creamery. *Belchertown, Mass.*

Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company. *Flagstaff, Arizona.*

Charles Arthur Trow, Mont Vernon. *Athens, Henderson Co., Texas.*

4—

1896.

Lewis Harris Kittredge, Keene. Manager of Peerless Manufacturing Company. *1193 Euclid Avenue, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business. *333 Walnut Street, Manchester.*

Carrie Augustus Bartlett, Lee. Teacher. *South Lee.*

Mary Blaisdell Bartlett, Epping. Instructor Pinkerton Academy. *Derry.*

Walter French Buck, Manchester. Science Teacher, High School. *Pawtucket, R. I.*

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher Woonsocket High School. *94 Blackstone Street, Woonsocket, R. I.*

Irving Lyford Dennett. Chief Engineer, New York Glucose Company. *Edgewater, N. J.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc., 1900, Columbia. Manager of Walker Gordon Laboratory Company's Farms. *Charles River Village, Mass.*

Leslie David Hayes, Durham. Teacher in Manual Training and Sciences, Ryan High School. *784 Fisk Street, Appleton, Wis.*

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. Medical Student, Columbia University. *New York City.*

Roscoe Hart Shaw, Milton. Instructor in Chemistry, University of Wisconsin. *So. Hall, Madison, Wis.*

Charles William Vickery, Dover. With Claflin Bros., Mining Engineers. *Nome City, Aalska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher. *Rye.*

Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm. *Stonehurst Farm, Intervale, N. H.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell Lee. Teacher. *Route 5, Dover.*

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham. *Durham.*

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Assistant in Dairy Husbandry, College of Agriculture, Cornell University. *37 East Avenue, Ithica, N. Y.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry. *1937 13th Street N. W., Washington, D. C.*

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. Teacher of Business Course in High School. *18 Washington Avenue, Winthrop, Mass.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Instructor in Physics and Electrical Engineering. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Mail Clerk. *25 Belknap Street, Dover.*

Herbert Fisher Moore, M. E. (Cornell, 1899), Penacook. Instructor in Machine Design, Sibley College, Cornell University. *112 Stewart Avenue, Ithaca, N. Y.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company. *93 Blackstone Street, Woonsocket, R. I.*

Harry Putnam Richardson, Milford. With the John Hancock Insurance Company. *346 East Thirty-Second Street, Paterson, N. J.*

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. *Ashland.*

Fred Webster Smith, Franklin Falls. Foreman Sulloway Mills. *Franklin Falls.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company. *Somersworth.*

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. With the General Electric Company, 502 Tradesmens' Building. *Pittsburg, Pa.*

Harry Everett Barnard, Nashua. Chemist for the State Board of Health, State Laboratory of Hygiene. *Concord, N. H.*

Harrison Edward Clement, Nashua. Mining Engineer, Mechanical and Constructing Engineer, Bingham Consolidated Mining and Smelting Company, Bingham Copper and Gold Mining Company, King Mining Company. *700 McCornick Building, Salt Lake City, Utah.*

Irving Atwell Colby, Exeter. Instructor in Machine Design, Sibley College, Cornell University. *703 East State Street, Ithaca, N. Y.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. With General Electric Company. *107 Park Street, Lynn, Mass.*

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. *Camp Skagway, Alaska.*

Louis Hobart Kenney, Pownal, Me. Draftsman, Engineering Division Fore River Ship and Engine Company. *Quincy, Mass.*

Grace Agnes Mark, Gilsum. (Mrs. Herbert F. More.)
112 Stewart Avenue, Ithaca, N. Y.
Arthur Zebulon Norcross, Rindge. Dairyman. *Pomfret Centre, Conn.*
Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops.
Concord, N. H.
Etta Lillian Simpson, Durham. Principal Grammar School. *Acushnet, Mass.*

12—

1900.

Herbert Prescott Andrews, Hollis. Power Department St. Louis Transit Company. *4049 Morgan Street, St. Louis, Mo.*
David Burns Bartlett, Manchester. Teacher.
250 Harrison Street, Manchester, N. H.
Francis Burnham, Durham. Teacher. *Athol, Mass.*
Blanche Mary Foye, Durham. Teacher in Milford High School. *Milford.*
Charles Elliot Page Mathes. With Wetherbee Allis Company, Clothiers.
456 Central Avenue, Dover, N. H.
Edward Emil Nelson, Nashua. Mining Engineer. With Bingham Consolidated Mining and Smelting Company, and Bingham Copper and Gold Mining Company, Dalton and Lark Mine. *Bingham, Utah.*
Alvena Pettee, Durham. Student, Columbia University.
1250 Amsterdam Avenue, New York City.
Marie Livingstone Robertson, Buffalo, N. Y. (Mrs. Benjamin N. Duggar.)
202 Hitt Street, Columbia, Mo.
Walter Noah Shipley, Nashua. Testing Department, General Electric Company. *608 Western Avenue, Lynn, Mass.*
Charles Edwin Stillings, Somersworth. Testing Department General Electric Company. *78 Mall Street, Lynn, Mass.*
John Ernest Wilson, Hollis. With H. A. Holden, Electrical Contractor, Boston. *45 Warren Street, Boston, Mass.*
Robert Morrill Wright, Hill. Principal Grammar School. *Belmont, N. H.*

12—

1901.

Henry Harold Calderwood, Nashua. With H. G. Cameron & Co., Hacienda de Tula Estado de Vera Cruz, Mexico. *Nashua.*
Charles Henry Courser, Warner.
Alice Emerson Dorr, Dover.
Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company. *671 Western Avenue, Lynn, Mass.*
Harry Gilbert Farwell, Keene. With the General Electric Company.
77 Grove Street, Lynn, Mass.
Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.
Charles Lund Hunt, Nashua. Second Lieutenant Twelfth United States Infantry. *Fort Duchesne, Utah.*

Edwin Price Jewett, Lakeport. Assistant Superintendent Walker Gordon Laboratory Farms. *Plainsboro, N. J.*

Robert McArdle Keown, Pomona, Fla. Draftsman with Kidder Press Company. *Dover.*

Elmer Eugene Lyon, Wentworth. Teacher. Connecticut School for Boys. *Meriden, Conn.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City. *Durham.*

Albert Edson Straw, Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Salmon Falls. *Rural Route No. 2, Dover.*

Edwin W. Gilmartin, Nashua. Testing Department, General Electric Company. *7 Vine Street, Lynn, Mass.*

John C. Kendall, Peterborough. Assistant in Dairy Husbandry, North Carolina College of Agriculture and Mechanic Arts. *West Raleigh, N. C.*

Harry M. Lee, Moultonborough.

Abiel A. Livermore, Wilton.

George E. Merrill, Newburyport, Mass.

Charles A. Payne, Portsmouth. Testing Department, General Electric Company. *77 Grove Street, Lynn, Mass.*

Eugene P. Runlett, Durham. Graduate Student, New Hampshire College.

Arthur L. Sullivan, Suncook.

9—

TWO YEARS' COURSE IN AGRICULTURE.

Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm. *Brightwood, D. C.*

Charles Wesley Martin, Durham. (1898.) Bellman, Hotel Raymond, Pasadena, Cal.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliot, Lyme. (1900.) Clerk Grain and Feed Store. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer. *Epsom.*

Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.)

Harry Douglass Verder, Hollis. (1901.)

Rufus Leonard Cushman, North Adams, Mass. (1901.)

George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) Student in four years' course, New Hampshire College.

George F. Hills, Hollis. (1902.)
Walter E. Quimby, Deerfield. (1902.)
Walter P. Tenney, Chester. (1902.)
Thornton N. Weeks, Greenfield. (1902.)
Robert E. Whittier, Deerfield. (1902.) Manager of Dairy Middlebrook Farm. *Dover.*
Edward C. Wilson, Wilton. (1902.)

SUMMARY.

Graduates, Bachelors of Science, 1871–1902	238
Graduates, Two Years' Course	19
Agriculturists	42
Architects	1
Business Pursuits	53
Chemists	4
Clergyman	1
Civil, Mechanical, Electrical, and Mining Engineers	23
Draftsmen	5
Lawyers	5
Manufacturers and Mechanics	16
Mining	4
Physicians	13
Post-Graduate Students	3
Teachers	29
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	15

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, Miss M. B., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Carpenter, L. J., 1882.
Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Cole, E. G., 1891.
Colburn, A. W., 1897.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.
Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.

*Dead.

Dennett, I. L., 1897.
Dewey, E. P., 1882.
Doe, Mary, 1902.
Dorr, Miss A. E., 1901.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliot, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. (2 year), 1902.
Farwell, H. G., 1901.
Flint, W. F., 1877.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gilmartin, E. W., 1902.
Gillis, L. C., 1889.
Given, A., 1898.
Gowen, Miss E. G., 1901.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, W. D. F., 1899.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.
Knowles, A. C. (2 year), 1800.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.

*Dead.

Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Porter, G. E., 1888.
Preston, J. F., 1890.
Putney, H. N., 1899.
Quinby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Record, C. E., 1878.
Richardson, H. P., 1898.
Robertson, Miss M. L., 1900.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Sanborn, E. C., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tolles, B. D., 1898.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.
Wason, E. H., 1886.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

*Dead.

SPECIMEN ENTRANCE EXAMINATION PAPERS, FOR FOUR YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}} - \frac{1}{2}a\sqrt{x}$ and $3bx^2 - \frac{2}{3}ax^{\frac{1}{2}} + 4b$.

3. Multiply $(-4ab)$, $(3\sqrt{ab})$, $(-2\sqrt{-ab})$, $(3\sqrt{-ab})$, $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of $x^6 + y^6$, $x^{-1} - y^{-6}$, $x^{2m} + x^m - 2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a} + \sqrt{b}}$, $\frac{1}{a^{\frac{1}{2}} + b^{\frac{1}{3}}}$, to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax} + \frac{3}{by} = 5$ and $\frac{5}{ax} - \frac{3}{by} = 2$.

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x - 2a + 3a^2)^2$. Perform operations indicated.

8. $3ax^2 - 2x + 3b = 0$. Solve for x.

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3} + 1\frac{3}{7}$.

3. $3.014 \times 27.900 \div .047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}} \times \frac{4}{3} \div \frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual, and compound interest on $1,200 for 3 years, 2 months, and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, liter, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in liters?

BOTANY.

1. What are the three principal parts of a plant, and what does each do for the plant?

2. What is the embryo? Of what parts does it consist? Where does the root originate? What part of the root takes food material from the soil?

3. What are the principal steps or periods in the life history of a plant?

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. Draw diagrams of the following leaves: (*a*) entire ovate; (*b*) lanceolate serrate; (*c*) lobed; (*d*) palmately cleft; (*e*) pinnately parted.

6. Draw diagrams of the following forms of inflorescence: raceme, spike, head, umbel, cyme.

7. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

8. To what families do the following plants belong: cucumber, peach, lettuce, cabbage, potato, corn, onions, celery, clover, strawberry?

9. How would you distinguish between an elm and an oak, a pine and a hemlock, an ash and a hickory?

10. What is the difference between a fruit and a seed?

ENGLISH.

The composition must be correct in spelling, grammar and punctuation.

I.

Select any *four* of the following topics and write a short composition on each:

1. The speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one*.

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir;* third singular, *aller;* third plural, *finir*. (*b*) Principal parts, *faire*, *venir*, *mettre*, *voir*, *prendre*.

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me this pen, if

you please. (6) I shall see him to-morrow, and he will give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston to-day, but she will be in Durham to-morrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre côté du sentier, tiré par un homme qu'il n'avait point aperçu et qui 'l ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d' Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, rencontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orsa tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitot, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantomes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hameau en hameau, de chaumière en chaumière, il allait, il allait, il allait . . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces pauvres mains habituées à recevoir de petites pièces de monnaie

blanche. Le curé fit même des folies, des vraies folies; il était lancé, il ne se connaissait plus. Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (a) Principal parts of brechen, gehen, halten, lesen, schlagen. (b) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schüchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.—[*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans batte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechts oder nach links zu schauen, und endlich im Sommer des Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet.—[*Hillern, Hoeher, als die Kirche.*]

(c) Elisabeth setzte sich unter eine überhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.—[*Storm*, *Immensee*.]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.
2. Draw a map showing Asia Minor, Macedonia, and the principal Grecian cities.
3. Locate, and with a sentence for each describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.
4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtaeus, Lycurgus.
5. Give a brief account of the Peloponnesian war.
6. Give a brief account of the Expedition of the Ten Thousand.
7. Give an account of the life and work of Herodotus.
8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time, in the Transvaal?
2. Is it now day, or night, in Manilla?
3. Describe the climate of Havana, Pekin, and Cape Nome.
4. State the causes of the variations in season, climate, day and night.
5. Describe the trade winds.
6. What ocean currents produce the fogs on the Grand Banks? Why?

7. What causes the high tides in the Bay of Fundy?

8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of thirty miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when twelve pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection, and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpindicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the polygon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate, and with a sentence for each describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott case.

7. Starting with 1789 explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term and the election provisions for senators; for the members of the House of Representatives.

CATALOGUE

NEW HAMPSHIRE COLLEGE *of* AGRICULTURE *and the* MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1903--1904

The
JOHN C
LIBRARY

Morrill Hall. Thompson Hall. Greenhouse. Conant Hall. Shop.

[NEW HAMPSHIRE COLLEGE]—A GENERAL VIEW.

CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE.

1903-1904.

PRINTED BY IRA C. EVANS CO., CONCORD.

BOUND BY RUMFORD PRINTING CO., CONCORD.

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CALENDAR.

1903.

JULY.

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1905.

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COLLEGE CALENDAR.

1903.

Sept. 1–2. Examinations for admission begin Tuesday, at 9 A. M.
Sept. 3. Regular college exercises begin Thursday, at 10 A. M.
Oct. 14. Stated meeting of Trustees.
Nov. 26. Thanksgiving recess.
Dec. 18. First term ends Friday night.

1904.

Jan. 5. Second term begins Tuesday, at 10 A. M.
Jan. 13. Stated meeting of Trustees.
March 11. Second term ends Friday night.

SPRING VACATION.

March 22. Third term begins Tuesday, at 10 A. M.
April 13. Stated meeting of Trustees.
May 29. Baccalaureate sermon, Sunday.
May 31. Stated meeting of Trustees.
May 31. Prize Drill, Tuesday A. M.
May 31. Smyth Prize Reading and Speaking, Tuesday evening.
June 1. Commencement day, Wednesday.

SUMMER VACATION.

Sept. 6–7. *Examinations for admission begin Tuesday, at 9 A. M.
Sept. 8. Regular college exercises begin Thursday, at 10 A. M.
Oct. 12. Stated meeting of Trustees.
Nov. 24. Thanksgiving Day.
Dec. 23. First term ends Friday night.

1905.

Jan. 10. Second term begins Tuesday, at 10 A. M.

* For details see p. 38.

BOARD OF TRUSTEES.

Hon. GEORGE A. WASON, New Boston, *President.*
His Excellency Gov. NAHUM J. BACHELDER, M. S., A. M., *ex officio.*
Pres. WILLIAM D. GIBBS, Durham, *ex officio.*
CHARLES W. STONE, A. M., East Andover.
Hon. LUCIEN THOMPSON, Durham, *Secretary.*
Hon. JOHN G. TALLANT, Pembroke.
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GEORGE B. WILLIAMS, Walpole.
Hon. WARREN BROWN, Hampton Falls.
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WALTER DREW, Colebrook.
GEORGE B. CHANDLER, Manchester.

Hon. WALTER M. PARKER, A. B., Manchester,
Treasurer.

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CHARLES L. PARSONS, B. S., *Professor of General and Analytical Chemistry.*

CLARENCE M. WEED, D. Sc., *Professor of Zoölogy and Entomology.*

FRANK WILLIAM RANE, B. Ag., M. S., *Professor of Horticulture and Forestry.*

CARLETON A. READ, S. B., *Professor of Mechanical Engineering.*

VERNON A. CALDWELL, Captain U. S. Army, *Professor of Military Science and Tactics.*

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ARTHUR F. NESBIT, S. B., A. M., *Associate Professor of Physics and Electrical Engineering.*

JOSEPH H. HAWES, *Associate Professor of Drawing.*

RICHARD WHORISKEY, Jr., A. B., *Associate Professor of Modern Languages.*

EDWARD L. SHAW, B. S., *Assistant Professor of Agriculture.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*

EDWARD H. HANCOCK, B. S., *Instructor in Mechanism and Woodwork.*
ERNEST R. GROVES, A. B., B. D., *Instructor in English and Philosophy.*
HARRIE B. PULSIFER, S. B., *Instructor in Chemistry.*
HENNING V. HENDRICKS, B. S., *Assistant in Physics and Electrical Engineering.*
JOHN C. BRIDWELL, B. S., *Assistant in Zoölogy and Botany.*

LIBRARY.

CLARENCE W. SCOTT, A. M., *Librarian.*
MABEL E. TOWNSHEND, A. B., *Assistant Librarian.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*
LENA B. ROWLEY, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

Hon. JOHN G. TALLANT, *Chairman* . Pembroke
Hon. GEORGE A. WASON . . . New Boston
CHARLES W. STONE, A. M., *Secretary* East Andover
Hon. WARREN BROWN . . Hampton Falls
Pres. WILLIAM D. GIBBS, *ex officio* . Durham

STATION COUNCIL.

WILLIAM D. GIBBS, M. S., *Director.*
FRED W. MORSE, M. S., *Chemist and Vice-Director.*
CLARENCE M. WEED, D. Sc., *Entomologist.*
FRANK WILLIAM RANE, B. Ag., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. S., *Agriculturist.*
EDWARD L. SHAW, B. S., *Associate Agriculturist.*

ASSISTANTS.

H. H. SCUDDER, B. S., *Assistant Chemist.*
HARRY F. HALL, *Assistant in Horticulture.*
JOHN C. BRIDWELL, B. S., *Assistant Entomologist.*
PERCY A. CAMPBELL, *Farm Foreman.*
MABEL E. TOWNSHEND, A. B., *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April tenth of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by

the state for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue, which are included under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $10,500; and from various other sources, about $5,000.

GENERAL INFORMATION.

The New Hampshire College of Agriculture and the Mechanic Arts is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire county is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire county, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Through the generosity of the late Mr. Hamilton Smith, of Durham, the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships, yielding $500 each, became available to those applying for examination in 1898, and to one student in each succeeding class.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

PRIZES.

I. *The Smyth Prizes.*—Through the generosity of the late ex-Governor Frederick Smyth, the following prizes have been offered: three prizes, one of twenty, one of fifteen, and one of ten dollars, for excellence in oratory. To the members of the sophomore and freshman classes, two prizes for reading, one of fifteen and one of ten dollars. Since the death of ex-Governor Smyth the prizes have been continued by Mrs. Marion C. Smyth.

II. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

III. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition	Free		$60.00
Text-books	$10.00	to	30.00
Drawing instruments and materials	7.50	to	30.00
Fees*	15.00		15.00
Room rent, including fuel	30.00	to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00	to	122.50
Total	$167.50		$307.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

* Including all charges commonly considered for extras, except those for breakage and damage to college property.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology, and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a given term are required to register at the president's office on or before 4 P. M. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one

dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

Students shall be admitted to classes only upon presentation of their registration card.

ATTENDANCE.

All students are required to attend chapel; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term, and the other on the first day of the winter term, of each year. No student shall receive his registration card or attend classes until his bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen nor more than twenty-one credit hours per week of classroom work or its equivalent, exclusive of military tactics, without the consent of the faculty.

LOSS OF STANDING.

No student shall be registered in any class until he has completed three fourths of the work of the preceding year, and all the work required up to the beginning of that year.

EXAMINATION ON ENTRANCE DEFICIENCES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the two days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The thesis shall be typewritten or printed upon standard thesis paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt lettered on first cover with title, name of author, degree sought, and year of graduation. This bound copy shall be approved by the faculty, filed, and left with the college librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' courses will be accepted, which does not contain an average of at least eighteen credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 P. M. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 3 P. M. on the next day, Wednesday.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings, and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochere* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One half of the first floor is devoted to the library, which is provided with a large, well-lighted reading-room for papers and magazines, a reference room for special work, a librarian's room, a delivery-room, and shelf space for fifty thousand volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting-room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drawing-room, and recitation rooms for biology, mechanical engineering, philosophy, and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity. The material is brick, laid in Flemish bond, with trimmings

of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is of cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower bath, a bulletin mailing room, a soil-storage room, a fan and heating room, and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy, and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room, and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

[Chemical and Physical Laboratories.]

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity, and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum, and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic, and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room, and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory, from the neighborhood of which masses of iron have been excluded, so that magnetic measurements can be made with a good degree of accuracy; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments, the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for

IN THE WOOD-SHOP.
(The Shop Building.)

THE
JOHN CRERAR
LIBRARY.

polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery, and pattern making are taught. Practice is given in the use of carpenters' tools, and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating two hundred and forty horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney ninety-five feet high carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering, and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological, and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making, and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns, and refrigerators, together with the engine.

BARNS.

The cattle barn is a wooden structure, the main portion of which is 50 by 100 feet, two stories in height, with a large basement. It has a one-story L 40 by 100 feet, with a basement under two thirds of it. This barn is a model structure, erected at an expense of about ten thousand dollars. It has accommodations for about sixty head of cattle, which are provided with sanitary stalls. There are the necessary divisions for storage of hay, grain, and seeds, and rooms for milk scales, ensilage cutter and repair shop. In addition there is a cold-storage room and a feed room. There are two silos, each having a capacity of about one hundred and twenty-five tons.

A second barn is used by the agricultural department for storing hay and implements, and stabling the department horses.

A third barn, about 30 by 60 feet, is used at present for keeping the horses and implements employed by the horticultural department.

GREENHOUSES.

A new range of greenhouses is just reaching completion. These houses have been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses besides a propagating hallway. Connected with the glass structure is a workroom 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes, and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic gives two good rooms, one of which is to be occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. Each of the houses is piped so that the temperature can be regulated for any kind of crop, and offers exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house are constructed of cypress, using angle iron eaves plates and iron supports. One house is being equipped for greenhouse management instruction, and each student will be given definite laboratory space and prescribed work. Two of the houses have ground beds, and are adapted for forcing vegetables, while the remaining houses have raised beds excepting the centre of the palm house, which is a ground bed.

These houses are to be lighted with electricity, and when completed and equipped will have all the modern accessories, and offer facilities for instruction and experimentation equal to any if not surpassing them. When students have completed the required greenhouse courses they will be prepared to take positions as florists or gardeners of estates, etc. This new range of greenhouses was provided for by the legislature of 1902–3. Cost, $7,000.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat, and oats; and with a large number of lantern slides, grass charts, and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties, and various makes of patent wire fences.

The college farm with its three hundred acres of land has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins, and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

The college has not kept any sheep within recent years, but during the coming year it is expecting to secure some thoroughbred Southdowns, Shropshires, Lincolns, and Merinos. For the study of the different breeds of swine the college has at present only the Yorkshires, although provision is soon to be made to raise both Berkshires and Poland Chinas.

In the new agricultural building there has been a large room fitted up for the judging of live stock, instruments for precise measurements are provided, and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon, and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past year. The completion of Morrill Hall gives this department the entire second floor, containing offices, lecture-room, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern, and slides illustrative of the various lines of horticulture are here used. The pomological and vegetable gardening laboratories are of original design, and offer every facility for modern work. During the fall term over one hundred varieties of apples were studied by the students. Other fruits in proportion were also studied. Persimmons and tropical fruits were received from Florida, grapes and pears from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varieties of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of

different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has sixty varieties in bearing. Grapes, peaches, apples, cherries, and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs and flowering plants is practiced. A fine collection of Vilmorin charts is owned by this department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of sixty acres of old forest growth is owned by the college. It is located close at hand, and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds, and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

Through the courtesy of leading manufacturers of dairy and creamery appliances, all available space is filled with various forms of cream separators, milk coolers, churns, and other appliances. Reid's latest pasteurizer, and the Disbrow combined churn and worker,—the only machines of the kind in New Hampshire,—have also been secured for the benefit of dairy students. The most approved appliances for milk testing form a part of the regular equipment. Steam is supplied by the large boilers at the power-house, and a new twelve horse-power engine adds to the efficiency of the department. In addition to the product of the college herd milk is received from about twenty-five farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work, and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories, and contain the forty horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and the large compound duplex pump which receives water under a head of fifteen feet through an eight-inch pipe from a reservoir one half-mile distant, and forces it through underground mains to the various hydrants and buildings, or through nozzles for measurements during tests. This pump, with its long supply pipe, a ten-inch stand-pipe, and a 6,000-gallon stand-pipe, furnish an apparatus for an extensive series of hydraulic experiments. It is fitted with indicator motions and other necessary equipment for complete duty tests.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression, and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a $5\frac{1}{2}$ by 8 by 7 air pump; and the usual supply of scales, gauges, thermometers, and small apparatus. The three sectional boilers, and the one hundred horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer, and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD-SHOP.

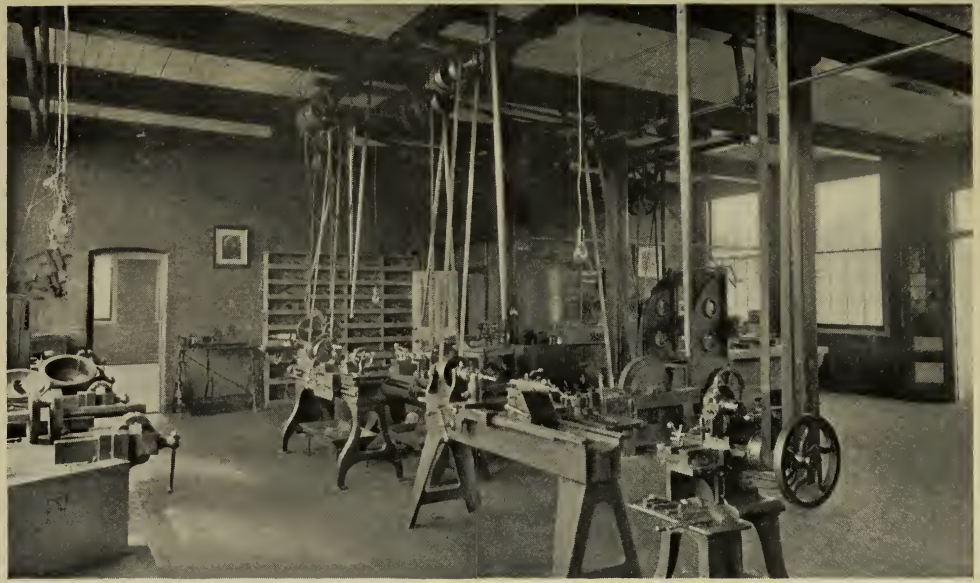
This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns, and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making, and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; twelve benches with vises; and a large number of small tools, including micrometer, calipers, and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains thirteen Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding, and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.



MECHANICAL LABORATORY.

THE
JOHN CREAR
LIBRARY

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks, and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass, and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism, the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor, and capable of adjustment

to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the five-hundred-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete fifty-five-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter, and transformer.

In the dynamo laboratory, a Westinghouse junior engine has been installed. It is capable of developing about twenty-three-brake horse-power under one hundred pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted, and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. A set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments, have been purchased for this shop.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious, and well equipped. Each is supplied with the latest forms of apparatus required for its particular kind of work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern, and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books, and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes, and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of ten thousand bound volumes and six thousand pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about eight thousand well selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, seven hours per week of chemical work during the junior year, and eight hours per week during the senior year. Two years of German will be required, and French is recommended to be taken by students intending to enter the division.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care, and operation of machinery.

The special studies are: Mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical, and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations, and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances, and the methods of designing, building, and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN TECHNICAL CHEMISTRY.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations, and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. The large and well-furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

The United States government has furnished arms and equipment for two hundred men. The facilities for outdoor drill are unexcelled. Abundant ammunition is supplied by the federal government for target practice at the college rifle range. The battalion wears a neat cadet grey uniform, and is under the command of an officer of the regular army, detailed by the secretary of war.

The aim of the military department is to qualify graduates that they may have full practical knowledge not only of drilling but of supplying and handling a company in actual service.

THE AGRICULTURAL READING ROOM.
(Morrill Hall.)

THE
JOHN CREAR
LIBRARY.

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

I. Arithmetic, including the metric system.

II. Algebra through quadratic equations, including radicals, and fractional and negative exponents.

III. Plane and Solid Geometry.

IV. Physics.—Gage's or Carhart & Chute's, or an equivalent.

V. Botany.—Gray's Lessons, sections 1 to 15 (inclusive), and sections 18 and 19, or an equivalent, with some knowledge of the classification of common flowering plants.

VI. Physical Geography.

VII. History of the United States.—Channing's Students' History of the United States, or an equivalent, with four hundred pages additional reading. Constitution of the United States. This is to represent not less than three exercises per week during one year of the high school course.

VIII. History of Greece.—Myers' larger work, or an equivalent.

IX. History of Rome to 814.—An adequate preparation would be represented by Myers' Rome, its Rise and Fall, and Chapters I to VI, of Myers' Middle Ages; or by Allen's Roman People, and Emerton's Introduction to the Middle Ages.

In place of Grecian and Roman History, candidates may offer a combination of Ancient History and English History. The amount of Ancient History required is represented by Wolfsen's Essentials. The amount of English History required is represented by either Larned's or Montgomery's History of England.

X. French or German.—Grammar. Translation of simple prose. Composition.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More stress, however, is placed on the translation from French into idiomatic English. The student should read at least four hundred pages. The following books are recommended:

1. Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, LaTulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives, and pronouns, the elements of syntax, the uses of the modal auxiliaries, and the translation from English into German of simple connected passages. In addition the applicant must have translated at least two hundred pages of simple German prose. The following books are recommended:

1. Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon).

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker, Irrfahrten (Henry Holt); Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

XI. English.—Two sets of books are prescribed for preparation in English, one for reading, the other for more careful study. No candidate will be admitted whose work is notably defective in points of spelling, punctuation, idiom, or division into paragraphs. The examinations will consist of two parts:

1. Reading.—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the book. In preparation for this part of the requirement it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be:

In 1904, 1905, the Sir Roger de Coverley Papers in "The Spectator"; Goldsmith's Vicar of Wakefield; Tennyson's Princess; Scott's Ivanhoe; George Eliot's Silas Marner; Coleridge's Rime of the Ancient Mariner; Shakespeare's Merchant of Venice and Julius Cæsar; Carlyle's Essay on Burns; Lowell's Vision of Sir Launfal.

2. Study and Practice.—This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

The books set for this part of the examination will be:

In 1904, 1905, Shakespeare's Macbeth; Burke's Speech on Conciliation with America; Macaulay's Essays on Milton and Addison; Milton's L'Allegro; Il Penseroso, Lycidas, and Comus.

Preparation is advised in Plane Trigonometry, also.

Admission will be refused to candidates failing in English, or showing marked deficiencies in spelling and punctuation.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

A certificate from an academy or a high school will be accepted in place of an examination, upon any subject required for admission. Every certificate must state the amount of work done by the student, his proficiency, and the text-books used; and in case it is not evident that the student is thoroughly prepared, an examination will be required.

Certificate forms will be furnished on application.

In place of an examination, the college will accept a certificate indicating the satisfactory completion of the second, third, or fourth of the courses of study for high schools recommended by the State Educational Council, and adopted by the State Teacher's Association at its meeting in Manchester, October, 1901, provided such high school is on the list approved by the State Superintendent of Public Instruction.

The times for examination are the Tuesday and Wednesday before the beginning of the first term, and from 8 to 10 A. M. on the first day of the term. Candidates will present themselves with their credentials on the first day of the examination. See Calendar. The following are the hours assigned to the different subjects:

TUESDAY.

9 A. M. Botany.	10.45 A. M. Grecian History.
1.30 P. M. Physics.	3.30 P. M. Algebra.

WEDNESDAY.

8 A. M. Roman History.	10 A. M. French or German.
1.30 P. M. American History.	3.30 P. M. Geometry.

THURSDAY.

8 A. M. English.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 P. M. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 P. M. on the next day, Wednesday. All work required for graduation must be completed by 6 P. M. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and the giving to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zoötechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy; Horticulture and Forestry.

AGRONOMY.

Agriculture 1. Principles of Agriculture. *45 exercises.*

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other. The course is given to the Short-Course students only, and forms a basis for the succeeding courses.

Agriculture 2. Farm Equipment. *45 exercises.*

Lectures and recitations upon the selection, planning, and equipment of farms; fences and fencing materials; drains and drainage; farm wells; objects, methods, and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains, and in the preparation of plans and maps of farms.

Agriculture 3. Soil Physics. *30 exercises.*

Lectures and recitations upon the formation, kinds, and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture.

TWO VIEWS IN THE SOIL PHYSICS LABORATORY.
(Morrill Hall.)

THE
JOHN CRERAR
LIBRARY.

Agriculture 4. Farm Crops. *30 exercises.*

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape, and other forage crops.

Agriculture 5. Manures and Fertilizers. *30 exercises.*

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops.

Agriculture 6. Origin of Soils and Soil Management. *20 exercises.*

Lectures and recitations upon the origin, distribution, and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops, and green-manuring; the establishment and maintenance of good tilth.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Agriculture 7. Breeds of Cattle. *45 exercises.*

Lectures and recitations upon the origin, history, characteristics, adaptability, and management of the different breeds of cattle.

A study of the beef breeds from the standpoint of the demands of the market; the methods of beef production and the preparation of cattle for sale and exhibition.

A study of the dairy breeds from the standpoint of the production of milk, butter, and the selection of individuals for the dairy herd. Practice in judging the different breeds.

Agriculture 8. Breeds of Sheep and Swine. *30 exercises.*

Lectures and recitations upon the origin, history, characteristics, and adaptability of the different breeds; care and management of sheep under various conditions; different grades of wool, their uses and value; comparative quality and value of the different portions of the carcass; the raising of early lambs; care and management of swine; selection of breeding stock; preparation of swine for exhibition; influence of different kinds of food upon pork production. Practice in judging the different breeds.

Agriculture 9. Breeds of Horses. *30 exercises.*

Lectures and recitations upon the origin, history, characteristics, adaptability and management of the different breeds; classification, breeding, and preparation of the different classes for the market; training and the proper methods of harnessing and hitching. Practice in judging the different classes.

Agriculture 10. Principles of Breeding. *30 exercises.*

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including a discussion of inbreeding, crossing, and grading. Practice will be given in tracing and writing pedigrees.

Agriculture 11. Veterinary Elements. *60 exercises.*

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations.

Agriculture 12. Animal Diseases. *30 exercises.*

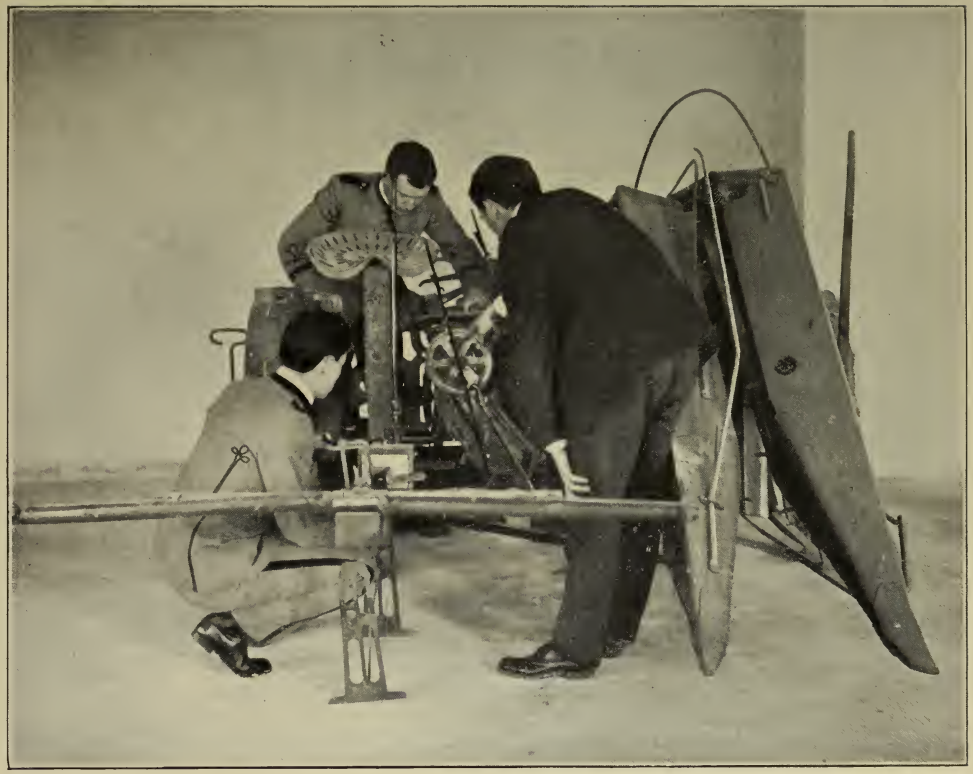
Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment.

Agriculture 13. Stock Feeding. *40 exercises.*

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes.

Agriculture 14. Animal Mechanics. *40 exercises.*

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1904.



IN AGRICULTURAL MACHINERY ROOM.
(Morrill Hall.)

THE
JOHN CRERAR
LIBRARY

RURAL ENGINEERING AND FARM ECONOMY.

Agriculture 15. Agricultural Seminary. *30 exercises.*

This course consists of library and reference work, and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture.

Agriculture 16. Rural Architecture and Farm Mechanics. *30 exercises.*

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery.

Agriculture 17. History of Agriculture and Rural Economics. *30 exercises.*

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States.

BOTANY.

1. Structural Botany. *30 exercises.*

Lectures and laboratory work on the minute structure and physiology of plants, with special reference to the higher forms.

2. Plant Diseases. *15 exercises.*

A study by means of lectures and laboratory work of some of the more important fungous diseases of cultivated plants, and the means of preventing their injuries.

Open only to students who have completed Botany 1.

3. Plant Families. *15 exercises.*

A study of the families of the flowering plants.

Open only to students who have completed Botany 1.

4. Advanced Courses.

a. 45 exercises. *b. 30 exercises.* *c. 30 exercises.*

Open only to those who have shown special proficiency in Botany.

CHEMISTRY.

1. Inorganic Chemistry. *45 exercises.*

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required.

2. Inorganic Chemistry. *30 exercises.*

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

3. Organic Chemistry.

a. 20 exercises. *b. 20 exercises.*

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties.

Open only to students who have completed Courses 1 and 2.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. He will have practice in the writing of reactions, and will fill out numerous slips containing questions bearing upon his work.

Open only to students who have completed Course 1.

5. *a.* Chemistry of Plant Growth. *45 exercises.*

The composition of plants at different stages of growth, and the conditions necessary for their development. This subject must be preceded by Chemistry Courses 1, 2, and 3.

b. Food and Nutrition. *20 exercises.*

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter, and the principles underlying a rational diet. This subject should be preceded by Course 5*a*.

6. *a*. Industrial Chemistry. *20 exercises.*

Course 6*a* consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable.

b. Metallurgy. *20 exercises.*

Course 6*b* consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products.

Open only to those who have completed Courses 1 and 2.

7. *a*. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation.

Open only to students who have completed Chemistry 4.

b. Advanced Quantitative Analysis.

Course 7*b* is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel, and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary, and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided.

Open only to students who have completed Course 7a.

c. Thesis.

The work of the last two terms of the Technical Chemistry Course is given up to the special study of some selected subject in any branch of chemical science, and the student is required to present a thesis showing him to be capable of independence of thought.

8. Organic Chemistry. *30 exercises.*

Course 8, for students in the Chemical Division of the Agricultural Course, and in the Technical Chemistry Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to those who have completed Course 3.

9. Chemical Journals, Methods, etc. *35 exercises.*

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles.

Open to students taking Course 7.

10. *a.* Physical Chemistry, Lectures. *30 exercises.*
b. Theoretical Chemistry, Lectures. *20 exercises.*

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, electrolysis, molecular and atomic volume, the chemistry of space, etc., will take up much of the time.

Course 10 comes in alternate years with Course 6, and is open to students who have completed Courses 1, 2, and 3.

11. Agricultural Analysis. *105 exercises.*

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, 4, and 5.

12. Metallurgical Analysis. *105 exercises.*

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, and 4.

13. Assaying. *10 exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who are taking Courses 7 or 12.

14. Chemical Research.

Especially arranged for students of the Course in Technical Chemistry who are in advance of their course.

DAIRYING.

1. Milk. *20 exercises.*

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

2. Milk Testing. *45 exercises.*

Lectures and recitations on the history and principles of the Babcock test and its application on the dairy farm, and in the creamery or milk inspector's laboratory. Under the guidance of the instructor the student will practice testing milk and its products until competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating milk solids.

3. Dairy Bacteriology. *30 exercises.*

Lectures, recitations, and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream.

4. Butter-making. *30 exercises.*

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details which make possible the production of fine butter.

5. Cheese-making. *30 exercises.*

A course of lectures will be given covering the details of manufacture, curing, and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States.

6. Dairy Machinery. *30 exercises.*

Lectures on the construction, operation, and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management.

7. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings, creameries, and cheese factories are also required, with estimates for building and equipment.

DRAWING.*

These courses are of an industrial nature, and include both free-hand and mathematical branches of this subject. They aim to cultivate accurate observation, careful thinking in applying the underlying theories, and manual dexterity in making the graphic records. The immense value of drawing as a means of expression is coming to be more and more fully recognized.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective, and may be taken only by those with adequate preparation.

1. Industrial Drawing.

a. 30 exercises. *b. 25 exercises.*

The work of the first two terms is required of all regular students. This includes free-hand lettering, elementary free-hand industrial drawing, and mathematical drawing, by means of instruments.

c. 30 exercises.

Mathematical drawing, working drawings, tracings, blue prints.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary.

Students intending to take an engineering course should purchase high grade instruments.

2. Industrial Drawing.*

a. 20 exercises. *b. 30 exercises.*

Light and shade drawing from the cast and from still life; pencil sketching; details of building construction; projection drawing; perspective.

3. Descriptive Geometry and Drawing.

a. 20 exercises. *b. 50 exercises.* *c. 30 exercises.*

Recitations and drawing exercises in the solution of problems in plane and solid geometry, by means of orthographic projections; shades, shadows, and perspective.

Course 3 is open only to those who have passed Mathematics 2.

4. Mechanical Drawing.

a. 30 exercises.

Orthographic projection.

b. 20 exercises. *c. 20 exercises.* *d. 45 exercises.*

Technical Drawing.

5. Industrial Drawing.*

a. 45 exercises. *b. 20 exercises.* *c. 30 exercises.*

Study of architectural detail; design; use of color; pencil sketching; perspective; historic ornament.

6. Drawing and History of Painting.*

a. 45 exercises. *b. 30 exercises.* *c. 30 exercises.*

Antique figure from casts, pencil sketching, charcoal drawing, use of water colors; study of the history of painting.

ENGINEERING.

1. Surveying. *30 exercises.*

Recitations, field-work, and plotting, including compass, transit, plane-table and level work.

*Elective.

2. Mechanism.

a. 30 exercises. *b. 20 exercises.* *c. 20 exercises.*

Recitations, and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection.

Course 2 is open only to those who have taken Drawing 3.

3. Mechanics of Engineering.

a. 30 exercises. *b. 40 exercises.* *c. 40 exercises.*

Courses 3*a*, 3*b*, and 3*c* are devoted to recitations in statics and dynamics.

Course 3 is open only to those who have taken Mathematics 1 to 5, inclusive.

4. Materials of Construction. *60 exercises.*

Recitations on the production, properties, uses, and preservation of engineering materials.

Course 4 is open only to those who have taken Course 3 and Chemistry 2.

5. Steam Engineering.

a. 60 exercises. *b. 40 exercises.* *c. 30 exercises.*

Recitations and lectures on thermodynamics, boilers, and valve gears.

Course 5 is open only to those who have taken Courses 3a, 3b, and Physics 1 and 2.

6. Hydraulics. *45 exercises.*

b. Hydraulic Motors. *30 exercises.*

Course 6 is open only to those who have taken Courses 3 and 5.

7. Dynamos and Electro-motors.

a. 45 exercises. *b. 30 exercises.* *c. 30 exercises.*

Lectures and quizzes on the construction and theory of dynamos and electro-motors, direct current and alternating.

Course 7 is open only to those who have taken Physics 1 to 4 and Mathematics 1 to 5.

IN THE ELECTRICAL LABORATORY.

IN THE DYNAMO LABORATORY.
(Conant Hall.)

8. Mechanical Laboratory.

a. 30 exercises.. b. 30 exercises. c. 20 exercises.

Tests of materials, boilers, engines, pumps, indicators, etc.

Course 8 is open only to those who have taken Courses 1 to 5.

9. Machine Design. *40 exercises.*

Course 9 is open only to those who have taken Courses 3 and 4.

10. Mechanical Engineering.

a. Multiple expansion engines. *30 exercises.*

b. Gas and Hot Air Engines and Refrigerating Machinery. *30 exercises.*

11. Roads, Streets, and Pavements. *30 exercises.*

Recitations and lectures on construction and maintenance of paved, macadamized, and gravel roads, with discussion of laws relating thereto.

12. Electrical Engineering.

a. 45 exercises. b. 60 exercises. c. 30 exercises.

A careful study is made of the principles and methods employed in telegraphy, telephony, and electric signaling; the transmission of electric energy for lighting and power purposes, by direct current, single phase, and multiphase systems; the electric railway, its installation and operation, and the practical management of dynamos and motors.

In connection with this course it is intended to make excursions to representative stations and plants, as a supplement to the class-room work.

Course 12 is open to those who have taken Engineering 7 and Physics 7, a to c.

13. Specifications and Contracts. *30 exercises.*

14. Graphic Statics. *30 exercises.*

ENGLISH.

1. Rhetoric and Composition.

a. 30 exercises. b. 20 exercises. c. 10 exercises.

*5. Early English.

Pattee's "Foundations of English Literature." Readings, reports and daily themes.

Open to Juniors. Three hours.

*6. Elizabethan Period.

Saintsbury's "Elizabethan Literature." Readings and reports.

Open to Juniors. Two hours.

7. Literature of the Eighteenth Century.

Gosse's "History of English Literature in the Eighteenth Century." Readings and reports.

Open to Juniors. Two hours.

8. Victorian Era.

Saintsbury's "History of Nineteenth Century Literature." Readings and reports.

Open to Seniors. Three hours.

9. American Literature.

a. 30 exercises. *b. 30 exercises.*

Lectures and study of authors.

10. Literary Criticism. *2 hours.*

Text-book, readings and reports.

Open to Sophomores.

11. Course in Debating. *1 hour.*

Lectures and debates.

12. A Course in the Poetry of Tennyson. *2 hours.*

The greater part of the author will be read by the students. Papers will be presented before the class.

Open to Sophomores.

FORESTRY.

1. Arboriculture and Forestry. *30 exercises.*

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade, and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops, and climate; establishment and management of plantations of forest trees.

*Students may elect Courses 5 or 6.

2. Forest Technology. *30 exercises.*

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber, and harvesting forest products. The physical properties of woods and forest botany and entomology are here further considered. Seminary and laboratory work.

3. Forest Economics. *30 exercises.*

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

FRENCH.

Courses 1, 2, and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation. *45 exercises.*

2. Grammar continued. Simple stories, committing of poems to memory. Dictation. *30 exercises.*

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation. *30 exercises.*

4. Reading and translation of Scientific French, Composition, Poems. *45 exercises.*

5. Reading, Translation, and Composition continued. *30 exercises.*

6. French Prose, History, and Travel; Composition based on some book read in class. *30 exercises.*

7. French Prose, Sight Reading. *45 exercises.*

Hugo, Balzac, Sand.

8. Classical French. *30 exercises.*

Corneille, Racine, and Molière.

9. General Review of French Literature. Outside reading; sight work.

GEOLOGY.

1. Elementary Geology. *30 exercises.*

2. Mineralogy. *30 exercises.*

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value.

Course 2 is open only to those who have taken Chemistry 1 and 2.

GERMAN.

Courses 1, 2, and 3 are taken in Freshman year by students who offer French for admission.

1. German Grammar. Declension of articles, nouns, adjectives, and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.
45 exercises.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading, and Translation; Poems. Dictation.
30 exercises.

3. Reading, Translation, and Composition; Sight Translation. Dictation. *30 exercises.*

4. German Prose of the Nineteenth Century. Composition based on some book read in class. *45 exercises.*

5. German Prose of the Nineteenth Century continued. Composition, outside reading. *30 exercises.*

6. Easier works of Lessing and Schiller. Composition.
30 exercises.

7. Masterpieces of German Literature. Lessing and Schiller.

8. Goethe. German Ballads and Lyrics.

9. General review of German Literature, outside reading.

The aim throughout the courses in French and German will be to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation, and paraphrasing the assigned texts.

HISTORY.

In the courses in history an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 9 are open only to those who have passed in History and Constitution of the United States.

1. History of Europe from 814 to 1492. Recitations and collateral reading. *45 or 60 exercises.*

2. History of Europe from 1492 to 1598. Recitations and collateral reading. *30 exercises.*

3. History of Europe from 1598 to 1715. Recitations and collateral reading. *30 or 40 exercises.*

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading. *45 or 60 exercises.*

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading. *30 exercises.*

6. History of Europe since 1815. Recitations and collateral reading. *30 or 40 exercises.*

7. Political and Constitutional History of the United States from 1783 to 1840. *60 exercises.*

8. Political and Constitutional History of the United States from 1840 to 1865. *30 exercises.*

9. Political and Constitutional History of the United States since 1865. *20 exercises.*

HORTICULTURE.

With the rapid development of agricultural education, the science and art of horticulture have become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture. *45 exercises.*

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests, and the scope and importance of its field. This course is given in the spring term of the Freshman year for the four-year students, and the fall term of the first year to the Short-Course students, and forms a basis for the succeeding courses.

2. Olericulture. *35 exercises.*

Lectures and recitations upon the culture, classification, and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties, and in the spring term twenty exercises are given to complete the course.

Open only to those who have completed Botany 1 and are taking Botany 2.

3. Greenhouse Management. *30 exercises.*

Lectures, recitations, and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work, and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

IN THE HORTICULTURAL LABORATORY.

STUDYING APPLES.
(Morrill Hall.)

THE
JOHN CRERAR
LIBRARY.

4. Pomology and Viticulture. *45 exercises.*

The culture, classification, and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations, and laboratory work.

Open only to those having completed Botany 1 and Zoology 3.

5. Floriculture and Home Decoration. *30 exercises.*

Lectures, recitations, and laboratory work. The culture and uses of ornamental plants are studied together with their history, classification, characteristics, propagation, and uses on private and public grounds.

Open only to those who have completed Horticulture 3.

6. Plant Breeding. *30 exercises.*

This course takes up the evolutionary study of plant life, and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

7. Landscape Gardening. *30 exercises.*

Lectures, recitations, and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out, and planting private and public grounds, parks, cemeteries, etc., are studied and practiced.

Courses Horticulture 3 and 5 must precede this course.

8. Horticultural Seminary. *20 exercises.*

This course consists of the study of current horticultural literature and various advanced horticultural problems.

MATHEMATICS.

1. Algebra completed. *75 exercises.*

2. Solid Geometry,* with advanced course. *40 exercises.*

3. Plane and Spherical Trigonometry. *50 exercises.*

4. Analytic Geometry. *75 exercises.*

*Elective for those entering unprepared in this subject. Attention is called to preparation required for Drawing 3. (See page 55.)

5. *(a)* Differential Calculus, *(b)* Integral Calculus. *10 exercises.*

6. Astronomy. *40 exercises.*

7. Differential Equations. *30 exercises.*

8. Quaternions. *20 exercises.*

METEOROLOGY.

1. Meteorology. *30 exercises.*

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes, and methods of prediction of atmospheric changes.

MILITARY SCIENCE AND TACTICS.

1. Military Drill.

Practical instruction in drill and gymnastic exercises.

Four exercises per week throughout the course.

2. Military Tactics.

Theoretical instruction in drill regulations and the elementary principles of military science.

One exercise per week throughout the Freshman, Sophomore, and Junior years.

PHILOSOPHY.

Courses 1 to 3 and 4 to 7 are given on alternate years.

1. Psychology. *45 exercises.*

Open to Juniors and Seniors.

2. Philosophy of Education. *30 exercises.*

Open to Juniors and Seniors.

3. Logic. *30 exercises.*

Open to Juniors and Seniors.

4. Ethics. *30 exercises.*

Open to Juniors and Seniors.

5. Psychology applied to Education. *15 exercises.*

Open to all who have taken Psychology.

6. Aristotle and Ancient Educational Ideals. *20 exercises.*

Open to Juniors and Seniors.

7. Science of Thought. *30 exercises.*

Open to all who have had at least one course in Philosophy.

PHYSICS.

1. Mechanics. *30 exercises.*

2. *(a)* Heat, *(b)* Light. *45 exercises.*

3. Sound. *20 exercises.*

4. Electricity and Magnetism. *40 exercises.*

Courses 1, 2, 3, and 4 are a general introduction to the subject. The instruction is given by recitations and lectures, the latter being illustrated by experiments and stereopticon.

The students of the Agricultural Course are required to take Physics 1*a*, 2*c*, 2*d*, 3*a*, and 4*a*, a less Mathematical Course than the above, which is given to the students of the Engineering and Technical Chemistry Courses.

General-Course students must elect one of these two courses.

5. Elements of Least Squares and the Precision of Measurements. *45 exercises.*

6. Physical Laboratory.

a. 30 exercises. *b. 30 exercises.*

The work consists in the experimental verification of the laws of physics and the determination of physical constants, a few of the investigations being the following: the analytical balance, the law of the pendulum, harmonic motions of translation and rotation, specific heats, latent heats, expansion of gases, law of lenses, candle-power of lights, velocities of sound in air and metals, the intensity of the earth's magnetism, the resistance of wires and voltaic cells, the e. m. f. of batteries, etc.

Courses 5 and 6 are taken consecutively and are open only to those who have passed in Courses 1, 2, 3, and 4. Students in engineering must also have passed in Mathematics 1 to 5, inclusive.

7. Theoretical Electricity.

a. 45 exercises. *b. 30 exercises.* *c. 60 exercises.**
d. 75 exercises. *e. 50 exercises.*

The course includes the subjects of electro-statics, magnetism, and electro-dynamics, as treated mathematically, the study of electrical measuring instruments and methods, the theory of alternating currents single and polyphase, and the theory of alternating current generators and motors of the various types.

Course 7 is open only to those who have passed Courses 1 to 6.

8. Applications of Electricity.

a. 45 exercises. *b. 30 exercises.*

The principles and methods employed in electrical measurements—such as resistance of wires and batteries, e. m. f. of batteries, current measurement by ammeter and electrolysis, use of the voltmeter, etc.—will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps, and the general principles of electrical distribution.

Course 8 is open to those who have taken Courses 1 to 4.

9. Electrical Laboratory.

a. 30 exercises. *b. 20 exercises.* *c. 20 exercises.*

This work consists of the various uses of the Wheatstone Bridge; the calibration of galvanometers, ammeters, etc.; the measurement of high resistances, capacities, and inductances; the determination of the candle-power of incandescent and arc lamps; the study of direct and alternating current dynamos and motors; the efficiencies of a transformer under different loads; power measurements by watt-meter, etc.

Course 9 is open only to those who have passed in Physics 1 to 7, and Engineering 7.

See also Engineering.

POLITICAL SCIENCE.

1. Political Economy. *50 exercises.*

An elementary course, with lectures upon some of the practical questions of the day.

* The students in the Electrical Engineering Course omit Engineering 7c, and in its place include an equivalent number of exercises under Physics 7c.

2. Laws of Business. *33 exercises.*

Recitations supplemented by lectures and the discussion of cases.

3. American Constitutional Law. *42 exercises.*

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

4. Money and Banking. *30 exercises.*

Recitations, readings, and lectures.

Courses 4 and 6 are given in alternate years.

Open only to those who have taken Course 1.

5. Socialism and Social Reform. *30 exercises.*

Recitations, readings, and lectures.

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

6. International Law. *30 exercises.*

Courses 4 and 6 are given in alternate years.

7. Public Finance. *30 exercises.*

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

SHOP WORK.

Three hours work in the shop is reckoned as one exercise.

1. Work in Wood-Shop.

a. 37 exercises. *b. 25 exercises.* *c. 30 exercises.*

Exercises in carpentry work, joinery, and pattern making.

2. Work in Machine Shop, Forge Shop, and Foundry.

Exercises in bench work, machine work, and shop measurements, forging, molding, and casting.

a. 30 exercises. (Forge.) *b. 20 exercises. (Machine.)*
c. 30 exercises. *d. 30 exercises. (Forge.)*
e. 20 exercises. (Machine.) *f. 20 exercises.*
g. 45 exercises. *h. 30 exercises. (Machine.)*
i. 30 exercises.

SPANISH.

Spanish 1, 2, and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

ZOOLOGY.

1. Introductory Zoölogy. *45 exercises.*

A general introduction to the study of animal life, by means of lectures and laboratory dissections of the principal types.

2. Animal Biology. *20 exercises.*

A general study of the nature and processes of animal life, with special attention to heredity, variation, development, and mental powers.

Open to students who have taken Course 1.

3. Entomology. *30 or 50 exercises.*

A review of the classification, structural characters, and biological relations of insects, with a special study of those injurious to cultivated crops and domestic animals, and of the means of preventing their injuries.

Open only to those who have taken Courses 1 and 2.

4. Economic Ornithology. *15 exercises.*

A study of the relations of birds to agriculture, and their relations to each other and to other organisms.

Course 4 is open only to students who have taken Courses 1, 2, and 3.

5. Systematic Ornithology. *15 exercises.*

A study of New England birds.

6. Advanced Zoölogy.

Averaging 4 exercises a week for a year.

Course 6 is intended for those students who elect Zoology for their Senior year. It will usually be modified to suit individual needs. Open only to those who have completed all preceding courses, and shown special proficiency in Zoology.

7. Zoölogical Bibliography.

One exercise a week for a year.

Open only to students taking Course 6.

COURSE OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily. Attendance is required of all students.

Military drill: Military Science 1. M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

FRESHMAN YEAR.

FOR ALL FOUR-YEAR COURSES.

FIRST TERM.

	Exercises.
Rhetoric—English 1*a*	2
Algebra—Mathematics 1	5
Shop Work—Shop Work 1*a*	2
Drawing—Drawing 1*a*	2
†History—History 1 or 4	3
French—French 1 or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
*Solid Geometry—Mathematics 2	3
Military Tactics—Military Science 2	1

SECOND TERM.

Rhetoric—English 1*b*	2
Trigonometry—Mathematics 3	4
Shop Work—Shop Work 1*b*	2½
Drawing—Drawing 1*b*	2½
†History—History 2 or 5	3
French—French 2 or German—German 2	3
Inorganic Chemistry—Chemistry 2	3
Military Tactics—Military Science 2	1

THIRD TERM.

Rhetoric—English 1*c*	1
Surveying—Engineering 1	3
Mechanics—Physics 1	3
†Botany—Botany 1	3
†Shop Work—Shop Work 1*c*	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 1*c*	3
†History—History 3 or 6	3 or 4
French—French 3 or German—German 3	3
Organic Chemistry—Chemistry 3	2
Military Tactics—Military Science 2	1

* Optional. Attention is called to preparation required for Drawing 3. (See page 55.)

† In the first and second terms History is taken by women in place of Shop Work. It is also taken by students who are prepared for advanced work. In the third term Shop Work and Drawing are taken by students intending to complete either of the Engineering Courses or the Course in Technical Chemistry; Botany is taken by all other students. Horticulture is taken by students intending to complete the Agricultural Course. History is taken by students intending to complete the General Course. Students in the General Course also elect between Surveying and Organic Chemistry.

COURSES IN AGRICULTURE.

Sophomore Year.

FIRST TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Physics 2	3
Horticulture 2	1
Botany 2 and 3	2
Agriculture 7	3
Military Science 2	1

SECOND TERM.

German 5	3
Chemistry 4	3
Zoölogy 2	3
Physics 3	3
Horticulture 3	3
Agriculture 8	3
Military Science 2	1

THIRD TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 9	3
Military Science 2	1

Junior Year.

FIRST TERM.

English 5	3
Chemistry 5*a*	3
Zoölogy 4	1
Dairying	5
Horticulture 4	3
Agriculture 2	3
Military Science 2	1

SECOND TERM.

	Exercises per week.
Chemistry 5*b*	2
Geology 1	3
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
Agriculture 11	4
Military Science 2	1

THIRD TERM.

English 7	3
Geology 2	3
Horticulture 5	3
Agriculture 4	3
Agriculture 12	3
Agriculture 13	4
Military Science 2	1

NOTES.—English 11. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

During the Junior year such students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11 and Agriculture 12.

SENIOR YEAR.

FIRST TERM.

(Required.)	Exercises per week.
Political Science 2 and 3	5
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from the following.)

English 8	3
Zoölogy 6	4
Chemistry 11	3
Botany 4*a*	3
Forestry 2	3
Agriculture 14	4
Philosophy 1	3

SECOND TERM.

(Required.)

	Exercises per week.
Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from the following.)

English 9*a*	3
Zoölogy 6	4
Botany 4*b*	3
Chemistry 11	2
Dairying	3
Agriculture 5	3
Agriculture 6	2

THIRD TERM.

(Required.)

Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from the following.)

Engineering 11	3
Zoölogy 6	4
Chemistry 11	3
Botany 4*c*	3
Forestry 2*a*	3
Horticulture 8	2
Philosophy 3	3

COURSES IN ENGINEERING.

SOPHOMORE YEAR.

FIRST TERM.

	Exercises per week.
Analytic Geometry—Mathematics 4	5
Mechanical Drawing—Drawing 4*a*	2
Heat and Light—Physics 2	3
German—German 4	3
Shop Work—Shop Work 2*a*	2
Mechanism—Engineering 2*a*	2
Military Tactics—Military Science 2	1
Chemical Laboratory—Chemistry 4	2

SECOND TERM.

	Exercises per week.
Differential Calculus—Mathematics 5*a*	5
Descriptive Geometry—Drawing 3*a*	2
Sound and Electricity—Physics 3 and 4	3
German—German 5	3
Shop Work—Shop Work 2*b*	2
Mechanism—Engineering 2*b*	2
Military Tactics—Military Science 2	1
Chemical Laboratory—Chemistry 4	2

THIRD TERM.

Integral Calculus—Mathematics 5*b*	5
Electricity and Magnetism—Physics 4	3
German—German 6	3
Descriptive Geometry—Drawing 3*b*	5
Mechanism—Engineering 2*c*	2
Military Tactics—Military Science 2	1

Junior Year.

Throughout the year Shop Work is taken by Mechanical Engineering students and Theoretical Electricity by Electrical Engineering students.

FIRST TERM.

	Exercises per week.
Mechanics of Engineering—Engineering 3*a*	2
Theoretical Electricity—Physics 7*a*	3
Least Squares and Precision of Measurements—Physics 5	3
Steam Engineering—Engineering 5*a*	4
Dynamos and Electro-Motors—Engineering 7*a*	3
Shop Work—Shop Work 2*d*	2
Descriptive Geometry—Drawing 3*c*	2
Graphic Statics—Engineering 14	2
Military Tactics—Military Science 2	1

SECOND TERM.

Mechanics of Engineering—Engineering 3*b*	4
Physical Laboratory—Physics 6*a*	3
Steam Engineering—Engineering 5*b*	3
Dynamos and Electro Motors—Engineering 7*b*	3
Theoretical Electricity—Physics 7*b*	3
Shop Work—Shop Work 2*e*	2
Technical Drawing—Drawing 4*b*	2
English 11	1
Military Tactics—Military Science 2	1

THIRD TERM.

	Exercises per week.
Mechanics of Engineering—Engineering 3*c*	4
Mineralogy—Geology 2	3
Physical Laboratory—Physics 6*b*	3
Steam Engineering—Engineering 5*c*	3
Dynamos and Electro-Motors—Engineering 7*c*	3
Theoretical Electricity—Physics 7*c*	3
Shop Work—Shop Work 2*f*	2
Technical Drawing—Drawing 4*c*	2
Military Tactics—Military Science 2	1

COURSE IN MECHANICAL ENGINEERING.

SENIOR YEAR.

FIRST TERM.

	Exercises per week.
Materials of Construction—Engineering 4	4
Hydraulics—Engineering 6*a*	3
Technical Drawing—Drawing 4*d*	3
Mechanical Laboratory—Engineering 8*a*	2
Shop Work—Shop Work 2*g*	2
Electrical Engineering—Engineering 12*a*	3

SECOND TERM.

Machine Design—Engineering 9	4
Mechanical Laboratory—Engineering 8*b*	3
Mechanical Engineering—Engineering 10*a*	3
Shop Work—Shop Work 2*h*	1
Hydraulic Motors—Engineering 6*b*	3
Specifications and Contracts—Engineering 13*a*	3
Thesis	2

THIRD TERM.

Mechanical Engineering—Engineering 10*b*	3
Mechanical Laboratory—Engineering 8*c*	2
Political Economy—Political Science 1	5
Thesis	3
Shop Work—Shop Work 2*i*	2
Specifications and Contracts—Engineering 13*a*	3

COURSE IN ELECTRICAL ENGINEERING.

Senior Year.

FIRST TERM.

	Exercises per week.
Materials of Construction—Engineering 4	4
Theoretical Electricity—Physics 7*d*	5
Mechanical Laboratory—Engineering 8*a*	2
Electrical Engineering—Engineering 12*a*	3
or French—French 4	3
Hydraulics—Engineering 6	3
Electrical Laboratory—Physics 9*a*	2

Victorian Era—English 8, may be taken as an extra.

SECOND TERM.

Electrical Laboratory—Physics 9*b*	2
Electrical Engineering—Engineering 12*b*	6
Mechanical Laboratory—Engineering 8*b*	3
Theoretical Electricity—Physics 7*e*	5
Mechanical Engineering—Engineering 10*a*	3
or French—French 5	3

THIRD TERM.

Mechanical Laboratory—Engineering 8*c*	2
Electrical Engineering—Engineering 12*c*	3
or French—French 6	3
Electrical Laboratory—Physics 9*c*	2
Thesis	3
Political Economy—Political Science 1	5
Mechanical Engineering—Engineering 10*b*	3

COURSE IN TECHNICAL CHEMISTRY.

Sophomore Year.

FIRST TERM.

	Exercises per week.
Analytic Geometry—Mathematics 4	5
Mechanical Drawing—Drawing 4*a*	2
German—German 4	3
Chemical Laboratory—Chemistry 4	3
Heat and Light—Physics 2	3
Military Tactics—Military Science 2	1

SECOND TERM.

Differential Calculus—Mathematics 5*a*	5
German—German 5	3
Chemical Laboratory—Chemistry 4 and 7*a*	5
Sound and Electricity—Physics 3 and 4	3
Military Tactics—Military Science 2	1

THIRD TERM.

Integral Calculus—Mathematics 5*b*	5
Mineralogy—Geology 2	3
German—German 6	3
Organic Chemistry—Chemistry 3*b*	2
Chemical Laboratory—Chemistry 7*a*	3
Electricity and Magnetism—Physics 4	3
Military Tactics—Military Science 2	1

Junior Year.

FIRST TERM.

Chemistry of Plant Growth—Chemistry 5*a*	3
Organic Chemistry—Chemistry 8	3
French—French 4	3
Mechanics of Engineering—Engineering 3*a*	2
Graphic Statics—Engineering 14	2
Chemical Laboratory—Chemistry 7*a*	4
Military Tactics—Military Science 2	1

SECOND TERM.

	Exercises per week.
Chemical Laboratory—Chemistry 7*b*	4
Industrial Chemistry—Chemistry 6*a*	2
Mechanics of Engineering—Engineering 3*b*	4
French—French 5	3
Physical Laboratory—Physics 6*a*	3
English 11	1
Military Tactics—Military Science 2	1

THIRD TERM.

Chemical Laboratory—Chemistry 7*b*	4
Metallurgy—Chemistry 6*b*	2
Mechanics of Engineering—Engineering 3*c*	5
French—French 6	3
Physical Laboratory—Physics 6*b*	3
Military Tactics—Military Science 2	1

Senior Year.

FIRST TERM.

Chemical Laboratory—Chemistry 7*b* or Chemistry 14	7
Shop Work—Shop Work 2*a*	2
Chemical Journals—Chemistry 9	1
Thermodynamics—Engineering 5*a*	4
Application of Electricity—Physics 8*a*	3

SECOND TERM.

Chemical Laboratory and Thesis—Chemistry 7*c* or Chemistry 14	8
Chemical Journals—Chemistry 9	1
Physical Chemistry—Chemistry 10*a*	3
Applications of Electricity—Physics 8*b*	3
Elizabethan writers—English 6	2

THIRD TERM.

Chemical Laboratory and Thesis—Chemistry 7*c* or Chemistry 14	6
Chemical Journals—Chemistry 9	1
Assaying—Chemistry 13	1
Theoretical Chemistry—Chemistry 10*b*	2
Political Economy—Political Science 1	5
English Literature—English 7	2

GENERAL COURSE.

Sophomore Year.

FIRST TERM.

	Exercises per week.
Introductory Zoölogy—Zoölogy 1	3
German—German 4	3
*Chemical Laboratory—Chemistry 4	3
Heat and Light—Physics 2 or Physics 2*c* and 2*d*	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 4	5
*Spanish—Spanish 1	3
Military Tactics—Military Science 2	1

*Elect 7 exercises.

SECOND TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
Sound and Electricity—Physics 3 and 4 or Physics 3*a* and 4*a*	3
*History—History 2 or 5	3
*Animal Biology—Zoölogy 2	3
*Differential Calculus—Mathematics 5*a*	5
*Industrial Drawing—Drawing 2*a*	2
*Spanish—Spanish 2	3
Military Tactics—Military Science 2	1
*English—English 10	2

*Elect 10 exercises.

THIRD TERM.

Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 4	3
*History—History 3 or 6	3
*Entomology—Zoölogy 3	3
*Chemical Laboratory—Chemistry 7	3
*Industrial Drawing—Drawing 2*b*	3
*Integral Calculus—Mathematics 5*b*	5
*Course in Tennyson—English 12	2
*Spanish—Spanish 3	3
Military Tactics—Military Science 2	1

*Elect 8 exercises.

Junior Year.

Sixteen exercises required; all elective, with the exception of Military Science and English 11.

FIRST TERM.

	Exercises per week.
Psychology, or Ethics and Education—Philosophy 1 or 4 and 5	3
French—French 4	3
American Political History—History 7	4
Early English—English 5	3
Chemistry of Plant Growth—Chemistry 5*a*	3
Economic Ornithology—Zoölogy 4	1
Chemical Laboratory—Chemistry 4 or Chemistry 7	3
Least Squares and Precision of Measurements—Physics 5	3
Drawing—Drawing 5*a*	3
Differential Equations—Mathematics 7	2
Spanish—Spanish 1	3
Military Tactics—Military Science 2	1

SECOND TERM.

French—French 5	3
American Political History—History 8	3
Elizabethan Writers—English 6	2
Philosophy of Education, or Aristotle and Education—Philosophy 2 or 6	3
Money and Banking, or International Law—Political Science 4 or 6	3
Geology—Geology 1	3
Food and Nutrition—Chemistry 5*b*	2
Chemical Laboratory—Chemistry 4 or Chemistry 7	3
Physical Laboratory—Physics 6*a*	3
Drawing—Drawing 5*b*	2
Quaternions—Mathematics 8	2
Spanish—Spanish 2	3
Military Tactics—Military Science 2	1
Debating—English 11	1

THIRD TERM.

French—French 6	3
Mineralogy—Geology 2	3
Writers of Restoration—English 7	2
Logic, or Science of Thought—Philosophy 3 or 7	3
American Political History—History 9	2
Socialism or Finance—Political Science 5 or 7	3
Military Tactics—Military Science 2	1
English—English 12	2
Drawing—Drawing 5*c*	3
Chemical Laboratory—Chemistry 7	3
Physical Laboratory—Physics 6*b*	3
Spanish—Spanish 3	3
Debating—English 11	1

Senior Year.

Sixteen exercises required; all elective.

FIRST TERM.

	Exercises per week.
Laws of Business—Political Science 2 Constitutional Law—Political Science 3	5
Psychology, or Philosophy 1 or 4	3
French—French 7	3
Victorian Writers—English 8	3
German—German 7	3
Chemical Laboratory—Chemistry 7*a*	3
Advanced Zoölogy—Zoölogy 6	4
Advanced Botany—Botany 4	3
Drawing and History of Painting—Drawing 6*a*	3
Spanish—Spanish 1	3
Thesis work	2

SECOND TERM.

Money and Banking, or International Law—Political Science 4 or 6	3
Philosophy 2 or 5	3
French—French 8	3
German—German 8	3
American Literature—English 9*a*	3
Astronomy—Mathematics 6	4
Chemical Laboratory—Chemistry 7*b*	3
Advanced Zoölogy—Zoölogy 6	3
Advanced Botany—Botany 4	3
Drawing and History of Painting—Drawing 6*b*	3
Spanish—Spanish 2	3
Thesis work	1 or 2

THIRD TERM.

American Literature—English 9*b*	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Engineering 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Socialism or Finance—Philosophy 3 or 7	3
Chemical Laboratory—Chemistry 7*b*	3
Advanced Zoölogy—Zoölogy 6	3
Advanced Botany—Botany 4	3
Drawing and History of Painting—Drawing 6*c*	3
Spanish—Spanish 3	3
Thesis work	1 or 2

HOURS OF STUDY.

Term	Day	Section	8-9	9-10	10-11
First	Mon.	I			
		II			Chemistry 1
	Tues.	I	German 1	French 1	Mathematics 1
		II			Military Sci. 2
	Wed.	I	English 1a		Chemistry 1
		II		English 1a	
	Thu.	I	German 1	French 1	Mathematics 1
		II			
	Fri.	I	English 1a	History 1 or 4	
		II		English 1a	Chemistry 1
	Sat.	I	German 1	French 1	Mathematics 1
		II			
Second	Mon.	I			Chemistry 2
		II			
	Tues.	I	German 2	French 2	Mathematics 3
		II			
	Wed.	I	English 1b	History 2 or 5	Mathematics 3
		II		English 1b	Chemistry 2
	Thu.	I	German 2	French 2	Mathematics 3
		II			Military Sci. 2
	Fri.	I	English 1b		
		II		English 1b	English 1b
	Sat.	I	German 2	French 2	Mathematics 3
		II			
Third	Mon.	I		Physics 1a	Physics 1
		II			Horticulture 1
	Tues.	I	German 3	French 3	Botany 1
		II		Drawing 1c	Drawing 1c
	Wed.	I	Military Sci. 2	Physics 1a	Physics 1
		II	English 1c		Horticulture 1
	Thu.	I	German 3	French 3	Botany 1
		II		Drawing 1c	Drawing 1c
	Fri.	I	English 1c	English 1c	Physics 1
		II	Military Sci. 2	Physics 1a	
	Sat.	I	German 3	French 3	Botany 1
		II		Drawing 1c	Drawing 1c

ALL FOUR YEARS' COURSES.

Day	Section	11-11.50	1.30-2.30	2.30-4
Mon.	I	Mathematics 1.....	Drawing 1a.....	Drawing 1a
	II	.....	Shop-work 1a.....	Shop-work 1a
Tues.	I	Military Science 2...	Drawing 1a.....	Drawing 1a
	II	Mathematics 1.....	Shop-work 1a.....	Shop-work 1a
Wed.	I	.....	Mathematics 1.....	.....
	II	History 1 or 4... ...	.....	Mathematics 1
Thurs.	I	.....	Shop-work 1a or.....	History 1 or 4
	II	Mathematics 1.....	Drawing 1a.....	Drawing 1a
Fri.	I	.....	Shop-work 1a.....	Shop-work 1a
	II	Mathematics 1.....	Drawing 1a.....	Drawing 1a.
Sat.	I	.....	.....	.....
	II	Mathematics 1.....	.....	.....
Mon.	I	Mathematics 3.....	Drawing 1b.....	Drawing 1b
	II	.....	Shop-work 1b.... ...	Shop-work 1b
Tues.	I	.....	Drawing 1b.....	Drawing 1b
	II	Mathematics 3.....	Shop-work 1b.... ...	Shop-work 1b
Wed.	I	.....	Drawing 1b or.....	Shop-work 1b
	II	Mathematics 3.....	Shop-work 1b or.....	Drawing 1b
Thurs.	I	Military Science 2...	Shop-work 1b or.....	History 2 or 5
	II	Mathematics 3.....	Drawing 1b.....	Drawing 1b
Fri.	I	....	Shop-work 1b.....	Shop-work 1b
	II	History 2 or 5.....	Drawing 1b.....	Drawing 1b
Sat.	I	.....	.....	.....
	II	Mathematics 3.....	....	.....
Mon.	I	History 3 or 6.....	Engineering 1.....	Engineering 1
	II	.....	.....	.....
Tues.	I	Botany 1.....	Engineering 1.....	Engineering 1
	II	Drawing 1c.....	.....	.....
Wed.	I	Chemistry 3.....	Engineering 1.....	Engineering 1
	II	.....	.....	.....
Thurs.	I	Botany 1.....	Shop-work 1c.....	Shop-work 1c
	II	Drawing 1c.....	History 3 or 6.....	History 3 or 6
Fri.	I	Chemistry 3.....	Shop-work 1c.....	Shop-work 1c
	II	....	History 3 or 6.....	History 3 or 6
Sat.	I	Botany 1.....	....	.....
	II	Drawing 1c.....	....	.....

AGRICULTURE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First...	Monday	Zoölogy 1	Zoölogy 1	Physics 2c & d	....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 7	Botany 3	Botany 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 7	Physics 2c & d	Military Science	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	.....	German 4	Agriculture 7	Agriculture 7
	Friday	Botany 2	Botany 2	Horticulture 2	Horticulture 2	Zoölogy 1	Zoölogy 1
	Saturday	.....	Physics 2c & d	.....	German 4	.....	.....
Second	Monday	Zoölogy 2	Zoölogy 2	Physics 3a & 4a	....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 8	.....	Military Science	German 5	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 8	Horticulture 3	Physics 3a & 4a	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 2	Zoölogy 2	Horticulture 3	German 5	Agriculture 8	Agriculture 8
	Friday	.....	Horticulture 3	Horticulture 3	Horticulture 3	Zoölogy 2	Zoölogy 2
	Saturday	.....	Physics 3a & 4a	.....	German 5	.....	.....
Third..	Monday	Military Science	Horticulture 2	Horticulture 2	....	Zoölogy 3	Zoölogy 3
	Tuesday	Agriculture 9	Political Science 1	.....	German 6	Horticulture 2	Horticulture 2
	Wednesday	Agriculture 9	Political Science 1	.....	....	Zoölogy 3	Zoölogy 3
	Thursday	.....	Political Science 1	Zoölogy 3	German 6	Agriculture 9	Agriculture 9
	Friday	.....	Political Science 1	.....	.....	Zoölogy 3	Zoölogy 3
	Saturday	.....	Political Science 1	....	German 6	.....	....

AGRICULTURE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First...	Monday	Dairying	Dairying	English 5	Agriculture 2	.....	Chemistry 5a
	Tuesday	Dairying	Dairying	Dairying	Agriculture 2	Horticulture 4	Horticulture 4
	Wednesday	Chemistry 5a	.....	English 5	Dairying	Agriculture 2	Agriculture 2
	Thursday	Military Science	Horticulture 4	.....	Dairying	.....	Chemistry 5a
	Friday	.....	.....	English 5	Dairying	Horticulture 4	Horticulture 4
	Saturday	Zoölogy 4	.....	.....	.....	....	....
Second	Monday	English 11	....	Forestry 1	Agriculture 11	.....	Chemistry 5b
	Tuesday	.....	Agriculture 10	Forestry 1	Geology 1	Agriculture 11	Chemistry 5b
	Wednesday	.....	.....	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
	Thursday	....	Agriculture 10	....	Geology 1	Agriculture 3	Agriculture 3
	Friday	....	.....	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
	Saturday	Military Science	....	.....	Geology 1	....	.....
Third..	Monday	....	Geology 2	Geology 2	Agriculture 4	Agriculture 13	....
	Tuesday	Horticulture 5	Horticulture 5	English 7	Agriculture 4	Agriculture 13	.....
	Wednesday	Agriculture 12	Geology 2	Geology 2	English 11	Agriculture 13	.....
	Thursday	Agriculture 12	Horticulture 5	English 7	.....	Agriculture 4	Agriculture 4
	Friday	Agriculture 12	Geology 2	Geology 2	.....	Agriculture 13	Agriculture 13
	Saturday	Horticulture 5	Horticulture 5	Horticulture 5	.....	.....	.....

AGRICULTURE.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First...	Monday					*Agriculture 14	Agriculture 15
	Tuesday		Political Science 2 & 3	History 7		*Agriculture 14	Agriculture 15
	Wednesday		Political Science 2 & 3	*Forestry 2		*Agriculture 14	Agriculture 14
	Thursday		Political Science 2 & 3	History 7		*Forestry 2	*Forestry 2
	Friday	*Forestry 2		*Agriculture 14	Political Science 2 & 3	History 7	
	Saturday		Political Science 2 & 3	History 7			
Second	Monday			History 8		*Agriculture 6	
	Tuesday		Horticulture 6	PoliticalScience 6		*Agriculture 6	
	Wednesday		*Agriculture 5	History 8			
	Thursday		Horticulture 6	PoliticalScience 6			
	Friday		*Agriculture 5	History 8		Horticulture 6	Horticulture 6
	Saturday		*Agriculture 5	PoliticalScience 6			
Third..	Monday		Agriculture 17			*Horticulture 7	*Horticulture 7
	Tuesday	*Forestry 2a	Agriculture 17	Meteorology 1		Agriculture 16	Agriculture 16
	Wednesday	*Horticulture 8	Agriculture 17			*Horticulture 7	*Horticulture 7
	Thursday	*Forestry 2a	Agriculture 16	Meteorology 1			
	Friday	*Horticulture 8	Agriculture 16	*Horticulture 7		*Forestry 2a	*Forestry 2a
	Saturday			Meteorology 1			

*Elective.

ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First..	Monday	....	Drawing 4a	Drawing 4a	Drawing 4a	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 4	Military Science	Physics 2	German 4	I Shop-work 2a	I Shop-work 2a
	Wednesday	Mathematics 4	Drawing 4a	Drawing 4a	Drawing 4a	Chemistry 4	Chemistry 4
	Thursday	Mathematics 4	Engineering 2a	Physics 2	German 4	II Shop-work 2a	Shop-work 2a
	Friday	Mathematics 4	I Shop-work 2a	I Shop-work 2a	I Shop-work 2a	II Shop-work 2a	Shop-work 2a
	Saturday	Mathematics 4	Engineering 2a	Physics 2	German 4	....	.....
Second	Monday	.....	Drawing 3a	Drawing 3a	Drawing 3a	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 5a	Engineering 2b	Physics 2	German 5	I Shop-work 2b	I Shop-work 2b
	Wednesday	Mathematics 5a	Drawing 3a	Drawing 3a	Drawing 3a	Chemistry 4	Chemistry 4
	Thursday	Mathematics 5a	Engineering 2b	Physics 2	German 5	II Shop-work 2b	II Shop-work 2b
	Friday	Mathema'ics 5a	I Shop-work 2b	I Shop-work 2b	I Shop-work 2b	II Shop-work 2b	II Shop-work 2b
	Saturday	Mathematics 5a	Military Science	Physics 2	German 5	.....	.....
Third.	Monday	....	.....	.....	Engineering 2c	Drawing 3b	Drawing 3b
	Tuesday	Mat ematics 5b	.....	Physics 4	German 6	Drawing 3b	Drawing 3b
	Wednesday	Mathematics 5b	Engineering 2c	.....	.....	Drawing 3b	Drawing 3b
	Thursday	Mathematics 5b	Military Science	Physics 4	German 6	Drawing 3b	Drawing 3b
	Friday	Mathematics 5b	.....	.....	.....	Drawing 3b	Drawing 3b
	Saturday	Mathematics 5b	.....	Physics 4	German 6	.....	....

ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First..	Monday	.....	Engineering 7a	Engineering 14	Physics 7a	Physics 5	Physics 5
	Tuesday	Drawing 3c	Drawing 3c	Drawing 3c	Engineering 5a	Physics 5	Physics 5
	Wednesday	Engineering 7a	Engineering 14	.....	Physics 7a	Physics 5	Physics 5
	Thursday	Drawing 3c	Drawing 3c	Drawing 3c	Engineering 5a	Shop-work 2d	Shop-work 2d
	Friday	Engineering 7a	Engineering 3a	Engineering 5a	Physics 7a	Shop-work 2d	Shop-work 2d
	Saturday	Military Science	Engineering 3a	.....	Engineering 5a	.....	.....
Second	Monday	English 11	Engineering 7b	Engineering 3b	Physics 7b	Physics 6a	Physics 6a
	Tuesday	Drawing 4b	Drawing 4b	Drawing 4b	Engineering 5b	Physics 6a	Physics 6a
	Wednesday	Engineering 7b	Engineering 3b	.....	Physics 7b	Physics 6a	Physics 6a
	Thursday	Engineering 7b	Engineering 3b	.....	Engineering 5b	Shop-work 2e	Shop-work 2e
	Friday	Drawing 4b	Drawing 4b	Drawing 4b	Physics 7b	Shop-work 2e	Shop-work 2e
	Saturday	Military Science	Engineering 3b	.....	Engineering 5b	.....	.....
Third.	Monday	Drawing 4c	Drawing 4c	Drawing 4c	Physics 7c	Physics 6b	Physics 6b
	Tuesday	Engineering 3c	Physics 7c	Engineering 5c	Engineering 7c	Physics 6b	Physics 6b
	Wednesday	Drawing 4c	Drawing 4c	Drawing 4c	Physics 7c	Physics 6b	Physics 6b
	Thursday	Engineering 3c	Physics 7c	Engineering 5c	Engineering 7c	Shop-work 2b	Shop-work 2b
	Friday	Engineering 3c	Physics 7c	Engineering 5c	Physics 7c	Shop-work 2b	Shop-work 2b
	Saturday	Engineering 3c	Engineering 7c	Engineering 5c	Military Science	.....	.....

MECHANICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First ..	Monday	Engineering 12a	Engineering 6a	Engineering 4	.....	Shop-work 2g	Shop-work 2g
	Tuesday	Engineering 4	.....	English 8	.....	.....	.....
	Wednesday	Engineering 12a	Engineering 6a	Engineering 4	.....	Drawing 4d	Drawing 4d
	Thursday	Engineering 4	Engineering 6a	English 8	Engineering 12a	Engineering 8a	Engineering 8a
	Friday	Drawing 4d	Drawing 4d	Drawing 4d	.....	Engineering 8a	Engineering 8a
	Saturday	Drawing 4d	Drawing 4d	English 8	Drawing 4d	.....	.....
Second	Monday	.....	.....	Engineering 13a	Engineering 10a	Thesis	Thesis
	Tuesday	Engineering 9	.....	.....	Engineering 6b	Thesis	Thesis
	Wednesday	.....	Engineering 9	Engineering 13a	Engineering 10b	Engineering 8b	Engineering 8b
	Thursday	.....	....	Engineering 9	Engineering 6b	Engineering 8b	Engineering 8b
	Friday	Shop-work 2h	Shop-work 2h	Shop-work 2h	Engineering 10a	Engineering 8b	Engineering 8b
	Saturday	.....	Engineering 13a	Engineering 9	Engineering 6b	.....	.....
Third .	Monday	.....	Engineering 10b	Engineering 13b	Engineering 10b	Engineering 8c	Engineering 8c
	Tuesday	.....	Political Science 1	Thesis	Thesis	Engineering 8c	Engineering 8c
	Wednesday	.....	Political Science 1	Shop-work 2i	Shop-work 2i	Shop-work 2i	Shop-work 2i
	Thursday	.....	Political Science 1	.....	Engineering 13b	Thesis	Thesis
	Friday	Engineering 13b	Political Science 1	.....	Engineering 10b	Thesis	Thesis
	Saturday	....	Political Science 1	....	.....	.....	... .

ELECTRICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30.	2.30-4
First	Monday	Engineering 12a	Engineering 6a	Engineering 4	French 4	Physics 9a	Physics 9a
	Tuesday	Engineering 4	Physics 7d	.....	Physics 7d	.....	....
	Wednesday	Engineering 12a	Engineering 6a	Engineering 4	French 4	Physics 9a	Physics 9a
	Thursday	Engineering 4	Engineering 6a	.....	Engineering 12a	Engineering 8a	Engineering 8a
	Friday	..... .	Physics 7d	.....	French 4	Engineering 8a	Engineering 8a
	Saturday	.....	Physics 7d	.....	Physics 7d	.....	.....
Second..	Monday	.....	.....	Physics 7c	Engineering 10a or French 5	Physics 9b	Physics 9b
	Tuesday	Physics 7e	.....	....	Engineering 12b	Physics 9b	Physics 9b
	Wednesday	.....	Engineering 12b	Physics 7c	Engineering 10a or French 5	Engineering 8b	Engineering 8b
	Thursday	.....	Physics 7e	.....	Engineering 12b	Engineering 8b	Engineering 8b
	Friday	.....	Engineering 12b	Physics 7e	Engineering 10a or French 5	Engineering 8b	Engineering 8b
	Saturday	Engineering 12b	.....	.....	Engineering 12b	....	.....
Third ...	Monday	Engineering 12c	Engineering 12c	.....	Engineering 10b or French 6	Engineering 8c	Engineering 8c
	Tuesday	Political Science 1	Engineering 12c	.....	.....	Engineering 8c	Engineering 8c
	Wednesday	Political Science 1	Thesis	Thesis	Engineering 10b or French 6	Physics 9c	Physics 9c
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Physics 9c	Physics 9c
	Friday	Political Science 1	Engineering 12c	....	French 6	Thesis.	Thesis
	Saturday	Political Science 1	Engineering 10b	.....	Engineering 12c	.....	....

TECHNICAL CHEMISTRY.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	.....	Drawing 4a	Drawing 4a	Drawing 4a	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 4	.....	Physics 2	German 4	Chemistry 4	Chemistry 4
	Wednesday	Mathematics 4	Drawing 4a	Drawing 4a	Drawing 4a	Chemistry 4	Chemistry 4
	Thursday	Mathematics 4	Military Science 2	Physics 2	German 4	Chemistry 4	Chemistry 4
	Friday	Mathematics 4	....	.....	.....	Chemistry 4	Chemistry 4
	Saturday	Mathematics 4	.....	Physics 2	German 4	.....	.....
Second..	Monday	....	.....	.....	.....	Chemistry 4 & 7a	Chemistry 4 & 7a
	Tuesday	Mathematics 5a	.....	Physics 3 & 4	German 5	Chemistry 4 & 7a	Chemistry 4 & 7a
	Wednesday	Mathematics 5a	....	.....	.....	Chemistry 4 & 7a	Chemistry 4 & 7a
	Thursday	Mathematics 5a	Military Science 2	Physics 3 & 4	German 5	Chemistry 4 & 7a	Chemistry 4 & 7a
	Friday	Mathematics 5a	.....	.....	.....	Chemistry 4 & 7a	Chemistry 4 & 7a
	Saturday	Mathematics 5a	.....	Physics 3 & 4	German 5	.....	.....
Third...	Monday	.....	Geology 2	Geology 2	.....	Chemistry 7a	Chemistry 7a
	Tuesday	Mathematics 5b	.....	Physics 4	German 6	Chemistry 7a	Chemistry 7a
	Wednesday	Mathematics 5b	Geology 2	Geology 2	Chemistry 3b	Chemistry 7a	Chemistry 7a
	Thursday	Mathematics 5b	Military Science 2	Physics 4	German 6	.....	....
	Friday	Mathematics 5b	Geology 2	Geology 2	Chemistry 3b	.....	....
	Saturday	Mathematics 5b	... .	Physics 4	German 6	.....	....

TECHNICAL CHEMISTRY.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	Military Science	Military Science 2	Engineering 14	French 4	Chemistry 7a	Chemistry 7a
	Tuesday	Chemistry 5a	.....	.....	.....	Chemistry 8a	Chemistry 8a
	Wednesday	Chemistry 5a	Engineering 14	.....	French 4	Chemistry 7a	Chemistry 7a
	Thursday	.....	.....	.....	.....	Chemistry 8a	Chemistry 8a
	Friday	Chemistry 5a	Engineering 3a	.....	French 4	Chemistry 7a	Chemistry 7a
	Saturday	.....	Engineering 3a	Chemistry 7a	Chemistry 7a	.....	.....
Second..	Monday	English 11	.....	Engineering 3b	French 5	Physics 6a	Physics 6a
	Tuesday	Chemistry 7b	Chemistry 7b	Chemistry 6a	.....	Physics 6a	Physics 6a
	Wednesday	.....	Engineering 3b	Chemistry 6a	French 5	Physics 6a	Physics 6a
	Thursday	.....	Engineering 3b	.....	.....	Chemistry 7b	Chemistry 7b
	Friday	Chemistry 7b	Chemistry 7b	Chemistry 7b	French 5	Chemistry 7b	Chemistry 7b
	Saturday	Military Science 2	Engineering 3b	.....	.....	.....	.....
Third ...	Monday	.....	.....	.....	French 6	Physics 6b	Physics 6b
	Tuesday	Engineering 3c	.....	English 7	Chemistry 6b	Physics 6b	Physics 6b
	Wednesday	Chemistry 7b	Chemistry 7b	Chemistry 7b	French 6	Physics 6b	Physics 6b
	Thursday	Engineering 3c	.....	English 7	Chemistry 6b	Chemistry 7b	Chemistry 7b
	Friday	Engineering 3c	.....	.....	French 6	Chemistry 7b	Chemistry 7b
	Saturday	Engineering 3c	Chemistry 7b	Chemistry 7b	Military Sci. 2	.....	.....

TECHNICAL CHEMISTRY.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	.....	....	.....	Physics 8a	Chemistry 7b	Chemistry 7b
	Tuesday	Chemistry 7b	Chemistry 7b	Chemistry 7b	Engineering 5a	Chemistry 7b	Chemistry 7b
	Wednesday	Shop-work 2a	Shop-work 2a	Shop-work 2a	Shop-work 2a	Physics 8a	Physics 8a
	Thursday	Chemistry 7b	Chemistry 7b	Chemistry 7b	Engineering 5a	Chemistry 7b	Chemistry 7b
	Friday	....	Chemistry 7b	Chemistry 7b	Physics 8a	Chemistry 7b	Chemistry 7b
	Saturday	.....	Chemistry 9	....	Engineering 5a	.....	....
Second..	Monday	Chemistry 7c	Chemistry 7c	Chemistry 7c	Physics 8b	Chemistry 7c	Chemistry 7c
	Tuesday	English 6	.....	.....	Chemistry 10a	Chemistry 7c	Chemistry 7c
	Wednesday	Chemistry 7c	Chemistry 7c	Chemistry 7c	Physics 8b	Chemistry 7c	Chemistry 7c
	Thursday	English 6	.....	Chemistry 10a	Chemistry 10a	Chemistry 7c	Chemistry 7c
	Friday	.....	.....	....	Physics 8b	Chemistry 7c	Chemistry 7c
	Saturday	Chemistry 7c	Chemistry 7c	Chemistry 9	Chemistry 10a	.....	.....
Third ...	Monday	Chemistry 7c	Chemistry 7c	Chemistry 7c	Chemistry 7c	Chemistry 7c	Chemistry 7c
	Tuesday	....	Political Science 1	English 7	Chemistry 10b	Chemistry 7c	Chemistry 7c
	Wednesday	.....	Political Science 1	....	.....	Chemistry 7c	Chemistry 7c
	Thursday	....	Political Science 1	English 7	Chemistry 10b	Chemistry 7c	Chemistry 7c
	Friday	Chemistry 7c	Political Science 1	Chemistry 7c	Chemistry 7b	Chemistry 13	Chemistry 13
	Saturday	.....	Political Science 1	.....	Chemistry 9	.....	.....

GENERAL COURSE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	Zoölogy 1	Zoölogy 1	Physics 2c	.....	Chemistry 4 Spanish 1	Chemistry 4
	Tuesday	Mathematics 4	....	Physics 2	German 4	Chemistry 4 Spanish 1	Chemistry 4
	Wednesday	Mathematics 4	Physics 2c	Military Science 2	History 1 or 4	Chemistry 4 Spanish 1	Chemistry 4
	Thursday	Mathematics 4	Zoölogy 1	Physics 2	German 4	History 1 or 4	History 1 or 4
	Friday	Mathematics 4	History 1 or 4	History 1 or 4	History 1 or 4	Zoölogy 1	Zoölogy 1
	Saturday	Mathematics 4	Physics 2c	Physics 2	German 4	.....	.....
Second..	Monday	Zoölogy 2	Zoölogy 2	Physics 3a & 4a	English 10	Chemistry 4 Spanish 2	Chemistry 4
	Tuesday	Mathematics 5a	Military Science 2	Physics 3 & 4	German 5	Chemistry 4 Spanish 2	Chemistry 4
	Wednesday	Mathematics 5a Drawing 2a	History 2 or 5 Drawing 2a	Physics 3a & 4a	English 10	Chemistry 4 Spanish 2	Chemistry 4
	Thursday	Mathematics 5a	Zoölogy 2	Physics 3 & 4	German 5	History 2 or 5	History 2 or 5
	Friday	Mathematics 5a Drawing 2a	Drawing 2a	Physics 3a & 4a	History 2 or 5	Zoölogy 2	Zoölogy 2
	Saturday	Mathematics 5a	Physics 3a & 4a	Physics 3 & 4	German 5	.....	.....
Third ...	Monday	Military Science 2	Drawing 2b	Drawing 2b	History 3 or 6	Chemistry 7 Spanish 3	Chemistry 7 Zoölogy 3
	Tuesday	Mathematics 5b	Political Science 1	Physics 4	German 6	Chemistry 7 Spanish 3	Chemistry 7
	Wednesday	Mathematics 5b	Political Science 1	English 12 Drawing 2b	Drawing 2b	Chemistry 7 Spanish 3	Zoölogy 3 Chemistry 7
	Thursday	Mathematics 5b	Political Science 1	Physics 4	German 6	Chemistry 7 History 3 or 6	History 3 or 6
	Friday	Mathematics 5b	Political Science 1	English 12 Drawing 2b	Drawing 2b	History 3 or 6 Zoölogy 3	History 3 or 6 Zoölogy 3
	Saturday	Mathematics 5b	Political Science 1	Physics 4	German 6	.....	.....

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	....	.....	English 5	French 4	Chemistry 4 or 7 Spanish 1	Chemistry 4 or 7 Physics 5
	Tuesday	Drawing 5a Chemistry 5a	Drawing 5a	History 7	Philosophy 1 or 4	Chemistry 4 or 7 Spanish 1	Chemistry 4 or 7 Physics 5
	Wednesday	Chemistry 5a	Mathematics 7	English 5	French 4	Chemistry 4 or 7 Spanish 1	Chemistry 4 or 7 Physics 5
	Thursday	Military Science 2	Zoölogy 4	History 7	Philosophy 1 or 4	Drawing 5a	Drawing 5a
	Friday	Drawing 5a Chemistry 5a	Drawing 5a Mathematics 7	English 5	French 4	History 7	History 7
	Saturday	English 12	....	History 7	Philosophy 1 or 4	.....	.....
Second..	Monday	English 11	....	History 8	French 5	Chemistry 4 or 7 Spanish 2	Chemistry 4 or 7 Physics 6a
	Tuesday	English 6	Philosophy 2 or 5	Political Science 4 or 6	Geology 1	Chemistry 4 or 7 Spanish 2	Chemistry 4 or 7 Physics 6a
	Wednesday	Chemistry 5b	Mathematics 8	History 8	French 5	Chemistry 4 or 7 Spanish 2	Chemistry 4 or 7 Physics 6a
	Thursday	English 6	Philosophy 2 or 5	Political Science 4 or 6	Geology 1	Drawing 5b	Drawing 5b
	Friday	Chemistry 5b	Mathematics 8	History 8	French 5	Drawing 5b	Drawing 5b
	Saturday	Military Science	Philosophy 2 or 5	Political Science 4 or 6	Geology 1	.....	....
Third ...	Monday	.....	Geology 2	Geology 2	French 6	Chemistry 7a Spanish 3	Chemistry 7a Physics 6b
	Tuesday	Philosophy 3 or 6	Military Science	English 7	Political Science 5 or 7	Chemistry 7a Spanish 3	Chemistry 7a Physics 6b
	Wednesday	History 9	Geology 2	Geology 2	French 6	Chemistry 7a Spanish 3	Chemistry 7a Physics 6b
	Thursday	Philosophy 3 or 6	.....	English 7	Political Science 5 or 7	Drawing 5c	Drawing 5c
	Friday	History 9	Geology 2	Geology 2	French 6	Drawing 5c	Drawing 5c
	Saturday	Philosophy 3 or 6	Drawing 5c	Drawing 5c	Political Science 5 or 7	.....	.....

GENERAL COURSE.—

Term	Day	8-9	9-10	10-11
First...	Monday			French 7
	Tuesday		Political Sci. 2 & 3	English 8
	Wednesday	German 7	Political Sci. 2 & 3	French 7
	Thursday		Political Sci. 2 & 3	English 8
	Friday	German 7		French 7
	Saturday		Political Sci. 2 & 3	English 8
Second	Monday		Mathematics 6	French 8
	Tuesday		Philosophy 2 or 5	Political Sci. 4 or 6
	Wednesday	German 8	Mathematics 6	French 8
	Thursday		Philosophy 2 or 5	Political Sci. 4 or 6
	Friday	German 8	Mathematics 6	French 8
	Saturday		Philosophy 2 or 5	Political Sci. 4 or 6
Third..	Monday		Engineering 11,	French 9
	Tuesday	Philosophy 3 or 6		Meteorology 1
	Wednesday	German 9	Engineering 11	French 9
	Thursday	Philosophy 3 or 6		Meteorology 1
	Friday	German 9	Engineering 11	French 9
	Saturday	Philosophy 3 or 6		Meteorology 1

SENIOR CLASS.

Day	11-11.50	1.30-2.30	2.30-4
Monday		Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7b	Chemistry 7b
		Spanish 1	
Tuesday	Philosophy 1 or 4	Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7b	Chemistry 7b
		Spanish 1	
Wednesday		Drawing 6a	Drawing 6a
		Botany 3	Botany 3
		Zoölogy 6	Zoölogy 6
		Chemistry 7b	Chemistry 7b
		Spanish 1	
Thursday	Philosophy 1 or 4	Zoölogy 6	Zoölogy 6
Friday	Political Science 2 or 3		
Saturday	Philosophy 1 or 4		
Monday		Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 7
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
		Spanish 2	
Tuesday	English 9a	Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
		Spanish 2	
Wednesday		Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6b	Drawing 6b
		Spanish 2	
Thursday	English 9a		
Friday			Mathematics 6
Saturday	English 9a		
Monday		Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
		Spanish 3	
Tuesday	Political Science 5 or 7	English 9b	English 9b
		Spanish 3	
Wednesday	English 9b	Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
		Spanish 3	
Thursday	Political Science 5 or 7		
Friday	English 9b	Chemistry 7b	Chemistry 7b
		Zoölogy 6	Zoölogy 6
		Botany 3	Botany 3
		Drawing 6c	Drawing 6c
Saturday	Political Science 5 or 7		

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four years' collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States."

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF SHORT COURSE.

FIRST TERM.

Mathematics	3 hours.
English	3 "
Botany	3 "
Principles of Horticulture	3 "
Principles of Agriculture	3 "
Military Science	1 hour.

SECOND TERM.

Mathematics	3 hours.
English	3 "
Shop-work	3 "
Chemistry	3 "
Botany	2 "
Greenhouse Management	3 "
Military Science	1 hour.

THIRD TERM.

Shop-work	3 hours.
English	2 "
Physics	3 "
Botany	3 "
Dairying	5 "
Military Science.	1 hour.

COURSE OF STUDY FOR SECOND YEAR OF SHORT COURSE.

FIRST TERM.

Zoölogy	3 hours.
Botany	2 "
Vegetable Gardening	1 hour.
Physics	3 hours.
Breeds of Cattle	3 "
Farm Equipment	3 "
Military Science	1 hour.

SECOND TERM.

Zoölogy	3 hours.
Manures and Fertilizers	3 "
Breeds of Sheep and Swine	3 "
Forestry	3 "
Veterinary Elements	4 "
Military Science	1 hour.

THIRD TERM.

Zoölogy	4 hours.
Vegetable Gardening	2 "
Animal Diseases	3 "
Farm Crops	3 "
Stock Feeding	4 "
Military Science	1 hour.

NOTE.—In the fall term Pomology may be substituted for Breeds of Cattle; in the winter term Soil Physics may be substituted for Breeds of Sheep and Swine; and in the spring term Floriculture may be substituted for Animal Diseases.

SCHEDULE OF HOURS FOR SHORT COURSE.

FIRST YEAR.—FIRST TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	English	Mathematics			Horticulture 1	Horticulture 1
Tuesday	Mathematics		Military Science		Botany	Botany
Wednesday	English		Agriculture 1	Horticulture 1	Botany	Botany
Thursday		Mathematics	Agriculture 1	Horticulture 1		
Friday	English		Agriculture 1		Botany	Botany
Saturday						

SECOND TERM.

Monday		Greenhouse M.	Greenhouse M.	Greenhouse M.	Botany	Botany
Tuesday	English	Chemistry		Mathematics	Botany	Botany
Wednesday	English	Greenhouse M.		Mathematics	Shop-work	Shop-work
Thursday		Chemistry	Military Science	Mathematics	Shop-work	Shop-work
Friday	English	Greenhouse M.	Greenhouse M.	Greenhouse M.	Shop-work	Shop-work
Saturday		Chemistry				

THIRD TERM.

Monday	Dairy	Dairy	Dairy	Physics	Shop-work	Shop-work
Tuesday	Dairy	Dairy	Botany	Botany	English	
Wednesday	Dairy	Dairy	Dairy	Physics	Shop-work	Shop-work
Thursday	Dairy	Dairy	Botany	Botany	English	
Friday	Military Science			Physics	Shop-work	Shop-work
Saturday	Dairy	Dairy	Botany	Botany		

SCHEDULE OF HOURS FOR SHORT COURSE.

SECOND YEAR.—FIRST TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday ...	Zoölogy 1	Zoölogy 1	.....	Farm Equipment	Physics	.....
Tuesday ...	Breeds of Cattle	Botany	Botany	Farm Equipment	Physics	.....
Wednesday	Breeds of Cattle	.....	Military Science	Physics	Farm Equipment	Farm Equipment
Thursday..	Zoölogy 1	Zoölogy 1	....	....	Breeds of Cattle	Breeds of Cattle
Friday.....	Botany	Botany	Vegetable Gardening	Vegetable Gardening	Zoölogy 1	Zoölogy 1
Saturday...	.....	.....	.....	.....	.....	....

SECOND TERM.

Monday....	Zoölogy 2	Zoölogy 2	.....	Veterinary Elements	Agriculture 3	Agriculture 3
Tuesday ...	Breeds Sheep and Swine	.....	Military Science	Forestry	Veterinary Elements	.....
Wednesday	Breeds Sheep and Swine	Fertilizers	Agriculture 3	Veterinary Elements	Forestry	Forestry
Thursday..	Zoölogy 2	Zoölogy 2	.....	Forestry	Breeds Sheep and Swine	Breeds Sheep and Swine
Friday	.....	Fertilizers	Agriculture 3	Veterinary Elements	Zoölogy 2	Zoölogy 2
Saturday ..	....	Fertilizers	.....	.....	... .	.....

THIRD TERM.

Monday....	Military Science	Vegetable Gardening	Vegetable Gardening	Farm Crops	Zoölogy 3	Zoölogy 3
Tuesday ...	.....	Stock Feeding	.....	Farm Crops	Vegetable Gardening	Vegetable Gardening
Wednesday	Animal Diseases	.....	Stock Feeding	.....	Zoölogy 3	Zoölogy 3
Thursday..	Animal Diseases	Stock Feeding	Zoölogy 3	.....	Farm Crops	Farm Crops
Friday	Animal Diseases	.....	Stock Feeding	Stock Feeding	Zoölogy 3	Zoölogy 3
Saturday ..	.....	... .	.....	....	....	.....

TEN WEEKS' COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 5, and continuing until Friday, March 18, 1904.

No entrance examinations are required, but students taking the course must possess a good common school education. The course is especially desirable for students of mature years.

The courses of study offered are dairying, stock-feeding, principles of breeding, breeds of sheep and swine, wood-working, soil physics, greenhouse management, forestry, botany and entomology, together with practical work in the creamery, work-shop and greenhouses.

A fee of five dollars will be charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, ten weeks, at $4 .	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office, Thompson Hall, on Tuesday, January 5, 1904.

TEN WEEKS' COURSE IN DAIRYING.

This course is offered in connection with the Winter Course in Agriculture, to young men who wish to make a specialty of dairying. It is designed for those who are specially desirous of mastering the art of butter-making, or who wish to become fitted for the position of manager or superintendent of a creamery. In New Hampshire, where dairying is carried on to a great extent in the sale of milk for the city markets, this course is especially valuable as a training for those operating farm dairies.

The Course in Dairying begins January 5, 1904, and closes March 18. The subjects taught are butter-making, milk-testing, pasteurizing milk and cream, dairy bacteriology, dairy farming, dairy chemistry, and care of steam engines and boilers.

The creamery is equipped with separator, milk-tester, pasteurizer, and all tools required in making butter and preparing milk and cream for market.

Requirements for admission are the same as for the Winter Course in Agriculture.

ESTIMATE OF EXPENSES.

Room rent, ten weeks at $1.00	$10.00
Board, ten weeks, at $3.00	30.00
Fee	5.00
Books	3.00
Total	$48.00

For circulars or further information concerning these courses address New Hampshire College, Durham, N. H.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of fifteen thousand dollars.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1903.

On Commencement Day, June 3, 1903, the following degrees were conferred:

Bachelors of Science.

in agriculture.

Everett Garfield Davis, Newmarket.
David Albert Watson, Durham.

in technical chemistry.

Harry David Batchelor, West Upton, Mass.
Morris Archer Stewart, Dover.

in mechanical engineering.

Frank Ray Brown, Durham.
Everett William Burbeck, Haverhill.

in electrical engineering.

Edgar Forest Bickford, Rochester.
Albert Noah Otis, Durham.

in general course.

Ralph Harvey Rollins, East Concord.
Melvin Johnson White, Farmington.

Honorary Degrees.

The degree of M. Sc. was conferred upon—

Gov. Nahum J. Bachelder, Andover, trustee, *ex officio*, 1903–1905.

Sidney B. Whittemore, Colebrook, trustee 1885–1893.

Charles McDaniel, Springfield, trustee 1888–1896.

Hon. Henry W. Keyes, Haverhill, trustee 1893–1899.

Ex-Gov. Frank W. Rollins, Concord, trustee, *ex officio*, 1899–1901.

Certificates.

Certificates from the Two Years' Course in Agriculture were awarded to—

Harry Garfield Brierley, Dover.
George Grover Manning, Boston, Mass.
James Henry Nixon, East Brentwood.
Roscoe Franklin Swain, So. Hampton.

PRIZE RECORD FOR 1903.

SMYTH PRIZES.

Given by Hon. Frederick Smyth.

Speaking:

1st. Arthur R. Merrill.
2d. Castine C. Swanson.
3d. Raymond L. Lunt.

Reading:

1st. Grace T. Foss.
2d. Neil S. Franklin.

BAILEY PRIZE.

Given by Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene.

Morris Archer Stewart.

ERSKINE MASON MEMORIAL PRIZE.

Everett William Burbeck.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Everett William Burbeck.

WINNER OF INDIVIDUAL PRIZE DRILL.

W. C. Campbell, '06.

HONORABLE MENTION.

S. A. Haley, '05.

PRIZE SWORD—BEST PAPER ON MILITARY SUBJECT.

T. J. Laton, '04.

SHARPSHOOTERS' BADGES.

E. W. Burbeck, '03.
J. E. Goodrich, '04.
S. B. Hayden, '05.
N. S. Franklin, '06.

The Valentine Smith scholarships are held by —

Thomas J. Laton, '04.
William O. Robinson, '05.
John D. Clark, '06.
J. Glenn Powers, '07.

THE POTTER COLLECTION.

Through the generosity of Mrs. Harriet W. Potter the college has received during the year an important collection of anatomical specimens, prepared by the late Dr. Frederick E. Potter, of Portsmouth, N. H.

ROSTER OF THE BATTALION OF CADETS.

For 1903–1904.

Commandant, Captain V. A. Caldwell,
Seventh Infantry U. S. A.

Major, T. J. Laton.

Company A.	Company B.
Capt. S. A. Richardson.	Capt. W. A. Barker.
1st Lieut. F. R. Pickering.	1st Lieut. L. Ashton.
2d Lieut. P. A. Campbell.	2d Lieut. A. R. Merrill.

Quartermaster-Sergt. S. T. Adams.

Sergeants.	Sergeants.
First Sergt. E. S. Savage.	First Sergt. C. O. Dodge.
Sergt. H. J. Pettee.	Sergt. J. L. Randall.
Sergt. S. B. Hayden.	Sergt. O. D. Mudgett.
Sergt. F. S. Putney.	Sergt. F. H. Heath.
Sergt. J. W. Moreton.	Sergt. H. U. Russell.

Corporals.	Corporals.
N. S. Franklin.	W. C. Campbell.
E. L. Converse.	R. Burnham.
A. M. Johnson.	E. J. Roberts.
	W. P. Flint.
	S. K. Barnes.

Musician.	Musician.
E. B. Davison.	P. R. Berry.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

SENIORS.

Name.	Residence.	Room.
Ashton, Leander *a*	*Pittsfield.*	Kappa Sigma House
Barker, Walter Allen *e e*	*Pittsfield.*	Thompson Hall
Campbell, Percy Anderson *a*	*Litchfield.*	Kappa Sigma House
Goodrich, Joseph Ezra *a*	*New Durham.*	Zeta House
Hill, George Herbert *m e*	*La Crosse, Wis.*	Zeta House
Laton, Thomas Jefferson *m e*	*Nashua.*	Kappa Sigma House

Total, 6.

JUNIORS.

Name.	Residence.	Room.
Adams, Samuel Taylor *ee*	*Pittsfield.*	Zeta House
Chesley, John Henry *e e*	*Rockingham.*	Rockingham
Dodge, Cleon Orestes *c*	*Sunapee.*	Mrs. Sanders's
Hayden, Silas Bryden *e e*	*So. Natick, Mass.*	Kappa Sigma House
Hayes, Harry Linwood *e*	*Exeter.*	Exeter
Hayes, Warren Chauncey *c*	*Durham.*	Mr. Hayes's
Heath, Fred Harvey *c*	*Warner.*	Prof. Scott's
Knight, Harold Nims *a*	*Marlborough.*	Mr. Schoonmaker's
Littlefield, Erwin Melvin *e e*	*Dover.*	Nesmith Hall
Merrill, Arthur Ronello *a*	*No. Bridgton, Me.*	Kappa Sigma House
Moreton, Joseph Wesley *e e*	*Medford, Mass.*	Zeta House
Mudgett, Orlo Dudley *e e*	*Gilmanton.*	Thompson Hall
Pettee, Horace James *e*	*Durham.*	Prof. Pettee's
Pickering, Fred Roberts *e e*	*Barnstead.*	Zeta House
Putney, Fred Silver, *a*	*Hopkinton.*	Prof. Scott's
Randall, John Leslie *a*	*Lee.*	Lee
Robinson, William Orrin *a*	*Marlborough.*	Monadnock Lodge
Russell, Harry Union *g*	*West Derry.*	Mr. G. Stevens's
Savage, Elmer Seth *a*	*Lancaster.*	Kappa Sigma House
Swanson, Castine Caroline *g*	*Cambridge, Mass.*	Mr. Hayes's
Tinkham, Frank Alvin *a*	*Grafton.*	Prof. Parsons's
True, Henry Olin *a*	*East Haverhill.*	The Mystic
Wiggin, Josiah Benjamin *m e*	*Andover.*	Prof. Scott's

Total, 23.

SOPHOMORES.

Name.	Residence.	Room.
Balch, Ivon Augustus *e*	*Antrim.*	Zeta House
Barnes, Stuart Kenrick *c*	*Walpole.*	Pettee's Block
Batchelder, Charles *a*	*So. Hampton.*	Mr. Schoonmaker's
Bickford, Edgar Charles *e*	*Durham.*	Mr. Bickford's
Black, Dennis Leo *g*	*Nashua.*	Zeta House
Campbell, Samuel Francis *a*	*Windham.*	Kappa Sigma House
Campbell, Willis Cassius *e*	*Windham.*	Kappa Sigma House
Clark, John Dustin *g*	*Nashua.*	Kappa Sigma House
Clement, Clarence Elbert *a*	*Derry.*	Mr. Meserve's
Converse, Ernest Luther *g*	*Amherst.*	Mr. Sawyer's
Davison, Earl B. *e*	*Lisbon.*	Zeta House
Edwards, Frank Andrew *e*	*New Boston.*	Mr. Sawyer's
Farr, Carroll Winfred *a*	*No. Weare.*	Mrs. Sanders's
Franklin, Neil Starr *e*	*Bernardston, Mass.*	Kappa Sigma House
Fuller, Carl Tilson *c*	*Nashua.*	Zeta House
Hardy, Edwin Davis *e*	*Nashua.*	Zeta House
Johnson, Allen Montague *e*	*Nashua.*	Zeta House
Lamson, Charles James Frank *e*	*Exeter.*	Exeter
Lunt, Raymond Louis *e*	*Dover.*	Nesmith Hall
Merrifield, Charles Henry	*Charlestown.*	Mr. Meserve's
Purrington, Wallace Fuller *c*	*So. Yarmouth, Mass.*	Zeta House
Richardson, Samuel Ambrose *e*	*Charlestown.*	The Mystic
Roberts, Edwin Jay *c*	*Laconia.*	Dr. Grant's
Swain, Roy Vance	*Barrington.*	Mrs. Sanders's
Tuttle, Charles Leo	*Exeter.*	Exeter

Total, 25.

FRESHMEN.

Name.	Residence.	Room.
Abbott, Burt Carlton	*Tilton.*	Zeta House
Armstrong, Percy Edwin	*Milford.*	Mr. Sawyer's
Batchelor, Leon Dexter	*West Upton, Mass.*	Kappa Sigma House
Belleville, William Edward	*Hinsdale.*	Zeta House
Berry, Philip Ray	*Alton.*	Mr. Bickford's
Broggini, Andrew	*Concord.*	Mr. Schoonmaker's
Burnham, Rayworth	*Antrim.*	
Burt, Harold Knights	*Franconia.*	Mr. Bickford's
Clement, James Herrick	*Derry.*	Mr. George DeMerritt's
Crosby, Harold LeRoy	*Dracut, Mass.*	Kappa Sigma House

Name.	Residence.	Room.
Cushing, James A.	*Warner.*	Prof. Scott's
Densmore, Frank Benjamin	*No. Charlestown.*	Zeta House
Dickey, Harold Hurst	*Manchester.*	Kappa Sigma House
Dodge, Carl Austin	*New Boston.*	Kappa Sigma House
Eaton, Charles Livermore	*Nashua.*	
Fish, Ralph Brown	*Kensington.*	Mr. Schoonmaker's
Glycart, Chris C.	*Haverhill, Mass.*	Pettee's Block
Gooch, George Webster	*Exeter.*	Exeter
Gooch, William Safford	*Exeter.*	Exeter
Gowen, Ralph Edward	*Stratham.*	The Mystic
Handy, Waylon Lester	*Swanzey.*	Zeta House
Ingham, Harry Edward	*Nashua.*	Kappa Sigma House
Jenness, Cyrus Fremont	*Gonic.*	Kappa Sigma House
Lane, Frank Davis	*Manchester.*	Kappa Sigma House
Littlefield, Ralph Albion	*Portsmouth.*	Portsmouth
Mooar, Mary Louisa	*Manchester.*	Prof. Nesbit's
Morin Eugene	*Hinsdale.*	Zeta House
Moser, Horace Edwin	*Merrimack.*	Kappa Sigma House
Murchie, William Evart	*Concord.*	Mr. Sawyer's
Neville, George Duncan	*New Boston.*	
Noyes, Bernard C.	*Landaff.*	Zeta House
Parsons, Carlton Henry	*Nashua.*	Zeta House
Pike, Mahlon Arthur	*Dover.*	Meserve Hall
Plummer, Carl Stevens	*Manchester.*	Kappa Sigma House
Powers, John Glenn	*Concord.*	Mr. Schoonmaker's
Priest, James Harry	*Manchester.*	Mrs. John Thompson's
Randall, Frank Wiggin	*Portsmouth.*	Mr. Bickford's
Reed, Ralph Samuel	*Worcester, Mass.*	Kappa Sigma House
Robinson, Lilla Maria	*Marlborough.*	Mr. George D. Stevens's
Shenton, Charles Marshall	*Nashua.*	Mrs. Goodwin's
Small, William Clifford	*Nashua.*	Kappa Sigma House
Smart, Joel Olin	*Farmington.*	Mr. Meserve's
Smith, Arthur Leon	*Portsmouth.*	Mr. Bickford's
Snow, Ezra David	*Whitefield.*	Pettee's Block
Stockwell, Franklin Emmons	*Lancaster.*	Zeta House
Townsend, Ellice S.	*Lebanon.*	Mr. George D. Stevens's
Tuck, Joseph Wingate	*Exeter.*	
Watson, Lucia Soule	*Durham.*	Mr. D. W. Watson's
Weeks, Albion G.	*Rochester.*	The Mystic
Wetzel, Edmund	*Portsmouth.*	Mr. Bickford's
Whittle, William Thurston	*Antrim.*	Zeta House
Woodward, Arthur Jason	*Lancaster.*	Pettee's Block

Total, 52.

TWO YEARS' COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Batchelder, Erland Graves	*Wilton.*	Monadnock Lodge
Fiske, Harry Martin	*Temple.*	Pettee's Block
Flint, Wesley Pillsbury	*Newburyport, Mass.*	Zeta House
Sanborn, Ernest Noyes	*Lakeport.*	Mr. Schoonmaker's
Shurbert, Henry Marston	*Northwood Ridge.*	Mrs. M. E. Wiggin's

Total, 5.

FIRST YEAR.

Barney, Grover Lafayette	*Grafton.*	Mr. G. Stevens's
Burkett, Chester Bickford	*Lawrence, Mass.*	Pettee's Block
Colby, Charles Wilbur	*Tilton.*	Zeta House
Dunn, Arthur Garfield	*Harrisville.*	Zeta House
Edmunds, Fred Sanborn Cleveland	*Chichester.*	Mr. Wentworth's
Frost, Henry Walter	*Dublin.*	Monadnock Lodge
Goodwin, James Bailey Gordon	*Durham.*	Mrs. Goodwin's
Gowing, Henry Newton	*Dublin.*	Monadnock Lodge
Ingalls, Jesse Ray	*Beecher Falls, Vt.*	Pettee's Block
Price, Amos Richardson	*Gilmanton Iron Works.*	Zeta House
Sanborn, Carl Jeremiah	*Pittsfield.*	Mr. Edgerly's
Stinson, Daniel Chase	*Goffstown.*	Mr. Bickford's
Taylor, Raymond Elias	*Antrim.*	Pettee's Block

Total, 13.

SPECIAL COURSE.

Name.	Residence.	Study.
Berry, Idella R.	*Dover.*	Biology
Dunham, Samuel Ellis	*Durham.*	Mechanical Engineering
Morse, Ruth Pauline	*Durham.*	Modern Languages
Watson, Gertrude	*Durham.*	Modern Languages and Chemistry

Total, 4.

DAIRY COURSE.

Name.	Residence.
Chatfield, William Alonzo	*Bethel, Vt.*
Duffield, Arthur Thomas	*Somersworth.*
Eaton, Tracy Albert	*Mason.*
Hurd, William Thomas	*Peterborough.*
Kimball, Arthur Rogers	*No. Haverhill.*
Small, Charles Edgar	*Strafford.*

Total, 6.

SUMMARY.

Seniors	6
Juniors	23
Sophomores	25
Freshmen	52
Students in Two Years' Course	18
Students in Dairy Course	6
Special Students	4
Total	134

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. †Present address unknown. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer. *R. F. D., Route 1, Concord.*
Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.
Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

†Edwin Bartlett, Bath. Harness business.
Frank Alexander White, Bow. Surveyor, Farmer. *Route 4, Concord.*

2—

1873.

†Frederick Erasmus Eldredge, Kensington.
James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900).
Principal of High School. *Campbell, Cal.*
Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878.
Pastor of Cong'l Church. *West Townshend, Vt.*
*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company. *East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician. *206 So. Main Street, Ottawa, Kansas.*

Harvey Jewell, Winchester. Fruit Grower and Market Gardener. *Cromwell, Conn.*

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Merchant. *Kimball, Minn.*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist. *287 Church Street, Keene.*

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass.*

11—*2

1876.

Herbert Cyril Aldrich, Troy. Real Estate and Orange and Lemon Grower. *12 Somers Street, Redlands, Cal.*

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer. *North Montpelier, Vt.*

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill. *6542 Kimbark Avenue, Chicago, Ill.*

Anson Ballard Cross, Holyoke, Mass. Contractor and builder. *Wilmington, Vt.*

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co. *Box 56, Gardner, Mass.*

7—

1877.

Rollin Kirk Adair, Indian Territory. Hotel. *Chelsea, Indian Ter.*

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. School Supt. and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (State Univ., Iowa, 1880), Keene.

William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer. *East Westmoreland.*

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher. *608 Washington Street, Boston, Mass.*

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company. *Board of Trade Building, 131 State Street, Boston, Mass.*

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate. *14 River Street, Hudson, Mass.*

13—*4

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder (Greenhouses a specialty). *73 Green Street, Leominster, Mass.*

3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician. *Gardner, Mass., Station A.*

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer. *The Elms, Springfield, Vt.*

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler. *5 Liberty Street, Concord.*

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician. *306 Walnut Street, Newtonville, Mass.*

6—*1

1880.

Charles Harvey Hood, Derry, Milk Business. *2 Benton Road, Somerville, Mass.*

1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent. *Bridgmans' Block, Keene.*

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer, *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. With International Paper Company. *Wilder, Vt.*

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Durham.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. *Cliff Street, Malden, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *State University, Lincoln, Neb.*

†John Wright Mason, Hanover.

†Harlan Addison Nichols, Derry. County Physician. *Fort Stockton, Texas.*

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885), Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt., Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883–1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Electrical Engineer, Foreign Department General Electric Company, 44 Broad Street, N. Y. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer. *Logan, Ohio.*

Frederick Plummer Comings, Lee. Trustee, 1893–1903. Private business. *2310 North 29th Street, Tacoma, Wash.*

Frank Harry Follansbee, Canaan. Railway Mail Clerk. *41 Sharon Street, West Medford, Mass.*

Adams Clark French, Franklin Falls.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer. *Cavendish, Vt.*

Elmer Daniel Kelley, Franklin Falls. Farmer and Business. *445 Central Street, Franklin Falls.*

Alvah Benjamin Morgan, Canaan. Registered Druggist. *Woodstock, Vt.*

William Lincoln Whittier, Deerfield. Machinist. *8 Hardy Street, Beverly, Mass.*

Charles Minot Woodward, Hanover. Superintendent of Schools, Granbury Public Schools. *Granbury, Texas.*

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Dealer in Real Estate, and Farmer. *Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Assistant Editor Monthly Weather Review. U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs. *11 Hancock Street, Malden, Mass.*

George Milton Moore, Plymouth, Vt. Real Estate, Insurance Agent. *Ludlow, Vt.*

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions. *587–593 Washington Street, Dorchester, and 529–533 Dudley Street, Roxbury, Mass.* *32 Milville Avenue, Dorchester, Mass.*

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *5 Allen Street, San Juan, P. R.*

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant. *Vernal, Utah.*

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895–97. Farm Superintendent. *Box 173, North Uxbridge, Mass.*

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes Bridge, Ill. *Office 50 78th Street, Chicago, Ill.*

Edward Alonzo Bailey, West Swanzey. With George Holbrook & Co.
55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. With North British and Mercantile Fire Insurance Company, 76 William Street, New York City,
Hempstead, N. Y.

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney at Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890–94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician. *815 Beacon Street, Boston, Mass.*

James Ellsworth Harvey, Surry. Photographer. *Clinton, Mass.*

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Instructor in Modern Languages in the State College, "St. Cyrille," Maître au Gymnase, "St. Cyrille," de Gouvernement, Tirnovo, Bulgarie. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *95 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney at Law. Solicitor for Hillsborough County. *146 Main Street, Nashua.*

George Pillsbury Wood, Lebanon. Draftsman and Clerk, Department of the Navy. *3407 Holmead Avenue, Washington, D. C.*

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecast Official in charge U. S. Weather Bureau Office. *U. S. Weather Bureau, Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Chief Inspector Stock Insurance Companies.
240 La Salle Street, Chicago, Ill.

George Albert Sanborn, Rochester. Salesman for Grand Union Tea Company. *Rochester.*

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt.; Member Am. Soc. C. E.; Chief Consulting Engineer U. S. Geological Survey, Washington, D. C. *National City, Cal.*

Bion Leland Waldron, Strafford. Observer U. S. Weather Bureau.
Columbus, Ohio.

5—

1888.

Melvin Burnside Carr, North Haverhill. Civil Engineer.
101 Milk Street, Boston, Mass.

Herbert Grant Davis, South Lee. General Manager Ogdensburg Gas Company; General Manager Ogdensburg Power and Light Company; General Manager Ogdensburg Street Railway Company.
1 Ford Street, Ogdensburg, N. Y.

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R.
Pittsburg, Penn.

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt., Physician.
Marengo, Wayne Co., N. Y.

George Jonathan Sargent, Canterbury. Civil Engineer. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau, in charge Columbus, Ohio, and of Ohio Section. Special Lecturer in Meteorology at Ohio State University.
16 East Broad Street, Columbus, Ohio.

George Elwin Walker, Littleton. Farmer. *Littleton.*

9—

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673–1679 Washington Street, Boston; 529–535 Dudley Street, Roxbury; and 587–593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America.
6 Worcester Square, Boston, Mass.

Charles Walter Earl Scott, Winchester. Mechanic. *Darrington, Wash.*

David Elmer Stone, Hartford, Vt. Grain Merchant.
Framingham Center, Mass.

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department. *56 Carmel Street, New Haven, Conn.*

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Civil Engineer. Metropolitan Water Board, Boston. Dam and Aqueduct Department, Clinton, Mass. *88 Orange Street, Clinton, Mass.*

†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Bookkeeper with N. E. Hollis, Boston, Mass. *11 Windsor Road, West Somerville, Mass.*

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant under firm name E. G. Cole & Co. *Hampton.*

Russell Marden Everett, Chester. Lawyer. *172 Market Street, Newark, N. J.*

Edward Payson Stone, Canaan Center. Chemist with Baton Rouge Sugar Company. *Baton Rouge, La.*

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Assistant Division Engineer, Pennsylvania Division, N. Y. C. & H. R. R. R. *Jersey Shore, Penn.*

Fred Driggs Fuller, Hanover. Assistant Chemist, New York Agricultural Experiment Station. *84 Lyceum Street, Geneva, N. Y.*

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist. and Entomologist of the Connecticut Agricultural Experiment Station, and Lecturer in Entomology in Yale Forestry School. *1317 Boulevard, New Haven, Conn.*

Frank John Bryant, Enfield. Teacher. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor. *13–21 Park Row Building, New York City.*

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Heating and Ventilating Engineer, 93 Federal Street. *3 Hamilton Place, Boston, Mass.*

Orrin Moses James, Northwood. Civil Engineer and Surveyor. *Northwood Narrows.*

Arthur Whitmore Smith, M. S. (Wesleyan University, 1895), Norwich, Vt. Instructor in Physics and Electrical Engineering, Tulane University of Louisiana. *New Orleans, La.*

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Farmer and Fruit Grower. *Keene.*

Frederic William Howe, Hollis. Professor of Chemistry. *State Normal School, Framingham, Mass.*

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company.
56 Pine Street, Bellows Falls, Vt.
Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Costkeeping Department).
31 Chestnut Street, Claremont.
†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.
†Charles Arthur Trow, Mont Vernon.

4—

1896.

Lewis Harris Kittredge, Keene. Treasurer and Manager of Peerless Manufacturing Company. *558 Sibley Street, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business.
333 Walnut Street, Manchester.
Carrie Augustus Bartlett, Lee. Teacher. *South Lee.*
Mary Blaisdell Bartlett, Epping. Instructor Pinkerton Academy. *Derry.*
Walter French Buck, Manchester. Science Teacher, High School.
Pawtucket, R. I.
Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*
Carrie Lydia Comings, Durham. Teacher, Woonsocket High School.
94 Blackstone Street, Woonsocket, R. I.
†Irving Lyford Dennett. Chief Engineer, New York Glucose Company.
*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.
Elwin Henry Forristall, M. Sc. (1900, Columbia). Firm of Fitts & Forristall, Electricians. *249 Lowell Street, Lawrence, Mass.*
Leslie David Hayes, Durham, Instructor of Manual Training and Chemistry, Rayen School. *266 Spring Street, Youngstown, Ohio.*
John Norton Hunt, Peterborough. *Peterborough.*
Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company.
P. O. Box 105, Lowell, Mass.
†Woodruff Mason, Stamford, Conn. Medical Student, Columbia University.
New York City.
Roscoe Hart Shaw, Milton. Instructor in Chemistry, University of Wisconsin.
So. Hall, Madison, Wis.
Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers.
Nome City, Alaska.
Delbert Amos Wheeler, South Ashburnham, Mass. Teacher. *Boston, Mass.*
Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm.
Stonehurst Farm, Intervale.

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher. *Farmington.*

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham. *Durham.*

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Professor of Agriculture, Delaware College. *Newark, Delaware.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry. *1937 13th Street, N. W., Washington, D. C.*

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. Teacher of Business Course and Science in High School. *Box 593 Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Chief Engineer Kyoto Electric Light Company. *Kyoto, Japan.*

†Harry Clinton Mathes, Newmarket. Mail Clerk. *25 Belknap Street, Dover.*

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Mechanical Engineer Richle Bros. Testing Machine Company. *1424 North Ninth Street, Philadelphia, Pa.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company. *93 Blackstone Street, Woonsocket, R. I.*

Harry Putnam Richardson, Milford. With the John Hancock Insurance Company. *346 East Thirty-Second Street, Paterson, N. J.*

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. *Ashland.*

Fred Webster Smith, Franklin Falls. Foreman Sulloway Mills. *Franklin Falls.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company. *52 Grove Street, Somersworth.*

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. Representative Crocker-Wheeler Company. *607 Empire Building, Pittsburg, Pa.*

Harry Everett Barnard, Nashua. Chemist for the State Board of Health, State Laboratory of Hygiene. *Concord.*

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer, Mechanical and Constructing Engineer, Bingham Consolidated Mining and Smelting Company, Bingham Copper and Gold Mining Company. *700 McCornick Building, Salt Lake City, Utah.*

Irving Atwell Colby, Exeter. Instructor in Machine Design, Sibley College, Cornell University. *119 Stewart Avenue, Ithaca, N. Y.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. Engineering Department General Electric Company. *35 Lover's Leap Avenue, Lynn, Mass.*

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. *Fort Leavenworth, Kansas.*

Louis Hobart Kenney, Pownal, Me. Draftsman U. S. N., Officer of Inspector of Machinery for U. S. Navy, The William Cramp & Sons Ship and Engine Works. *Philadelphia, Pa.*

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum. *1327 Girard Avenue, Philadelphia, Pa.*

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret Centre, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops. *Concord.*

Etta Lillian Simpson, Durham. Principal Grammar School. *Acushnet, Mass.*

12—

1900.

Herbert Prescott Andrews, Hollis. Assistant Superintendent International Cement Company. *Elizabeth, Pa.*

David Burns Bartlett, Manchester. Law Student. *325 Kennard Building, Manchester.*

Frances Burnham, Durham. Teacher Lincoln School. *Wakefield, Mass.*

Blanche Mary Foye, Durham. Teacher in Milford High School. *Milford.*

Charles Elliot Page Mathes. With Wetherbee Allis Company, Clothiers. *456 Central Avenue, Dover.*

Edward Emil Nelson, Nashua. Assistant Mine Superintendent, South American Development Company. *Guayaquil, Ecuador, S. A.*

Alvena Pettee, Durham. Director of Domestic Science, Clarkson Memorial Institute of Technology. *16 Elm Street, Potsdam, N. Y.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Testing Department, General Electric Company. *138 Lakeview Avenue, Lynn, Mass.*

Charles Edwin Stillings, Somersworth. Testing Department General Electric Company. *608 Western Avenue, Lynn, Mass.*

John Ernest Wilson, Hollis. With L. E. Russell & Co., Wholesale Millinery. *416 South Los Angeles Street, Los Angeles, Cal.*

Robert Morrill Wright, Hill. Principal Grammar School. *Belmont.*

12—

1901.

Henry Harold Calderwood, Nashua. With H. G. Cameron & Co., Hacienda de Tula Estado de Vera Cruz, Mexico. *Nashua.*

Charles Henry Courser, Warner. With Boston Elevated Railroad. *596 Main Street, Medford, Mass.*

Alice Emerson Dorr, Dover. *35 Summer Street, Dover, N. H.*

Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company. *671 Western Avenue, Lynn, Mass.*

Harry Gilbert Farwell, Keene. With General Electric Company. *77 Grove Street, Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery. *15 Lexington Street, Dover.*

Charles Alrum Hunt, Nashua. Second Lieutenant Twelfth United States Infantry. *Fort Duchesne, Utah.*

Edwin Price Jewett, Lakeport. In charge Prescription Department Walker Gordon Laboratory Co., *2112 Michigan Avenue, Chicago, Ill.*

Robert McArdle Keown, Pomona, Fla. Instructor in Mechanical Drawing, University of Pennsylvania. *217 DeKalb Square, Philadelphia, Pa.*

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Dixon Academy. *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City. *Durham.*

Edson Albert Straw. Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Rollinsford. Student at Radcliffe. *Rural Route No. 2, Dover.*

Edwin W. Gilmartin, Nashua. Testing Department, General Electric Company. *19 Arlington Street, Lynn, Mass.*

John C. Kendall, Peterborough. Assistant in Dairy Husbandry, North Carolina College of Agriculture and Mechanic Arts. *West Raleigh, N. C.*

Harry M. Lee, Moultonborough. Foreman Three Rivers Farm. *Dover.*

Abiel A. Livermore, Wilton. Florist. *Madbury.*

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Farmer, Indian Rock Farm. *Hampton Falls.*

Charles A. Payne, Portsmouth. Testing Department, General Electric Company. *50 Mall Street, Lynn, Mass.*

Eugene P. Runlett, Durham.

Arthur L. Sullivan, Suncook. Assistant Chemist United States Treasury, Director of Chemistry, Internal Revenue. *Washington, D. C.*

9—

1903.

Harry David Batchelor, West Upton, Mass. Miner with Bingham Consolidated Mining and Smelting Company, Dalton Lark Mines.
Bingham Canyon, Utah.

†Edgar Forest Bickford, Rochester. Westinghouse Electric Company.
Pittsburg, Pa.

Frank Ray Brown, Durham. Machinist with Draper Manufacturing Company. *21 Union Street, Bancroft Parkway, Hopedale, Mass.*

Everett William Burbeck, Haverhill. Mining Engineer with Minnesota Iron Company. *P. O. Box 370, or Spruce Office, Eveleth, Minn.*

†Everett Garfield Davis, Newmarket.

†Albert Noah Otis, Durham. With General Electric, Schenectady, N. Y.

Ralph Harvey Rollins, East Concord. Mining Engineer for the United States Steel Corporation, Minnesota Iron Company. *Hebbing, Minn.*

Morris Archer Stewart, Dover. Post-Graduate Student Massachusetts Institute of Technology, Boston, Mass. *9 Alston Street, Somerville, Mass.*

David Albert Watson, Durham. In charge of Greenhouses, New Hampshire College. *Durham.*

Melvin Johnson White, Farmington. Principal Calais High School.
Calais, Me.

10—

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) Bellman, Hotel Raymond, Pasadena, Cal.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliot, Lyme. (1900.) Farmer. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) Student in four years' course, New Hampshire College.

George F. Hills, Hollis. (1902.) Florist, Rose Farm. *Madbury.*

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Fruit Farmer. *Chester.*

†Thornton N. Weeks, Greenfield. (1902.)
†Robert E. Whittier, Deerfield. (1902.) Manager of Dairy, Middlebrook Farm.
Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros. *406 W. 60 Place, Chicago, Ill.*
†Harry Garfield Brierley. (1903.) Dover.
†George Grover Manning. (1903.) Boston, Mass.
†James Henry Nixon. (1903.) East Brentwood.
†Roscoe Franklin Swain. (1903.) South Hampton.

SUMMARY.

Graduates, Bachelors of Science, 1871–1903	248
Graduates, Two Years' Course	23
Agriculturists	48
Architects	1
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Chemists	6
Clergyman	1
Civil, Mechanical, Electrical, and Mining Engineers	27
Draftsmen	5
Lawyers	5
Manufacturers and Mechanics	16
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	15

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, Miss M. B., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Batchelor, H. D., 1903.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Carpenter, L. J., 1882.
Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Cole, E. G., 1891.
Colburn, A. W., 1897.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.
Cragin, L. M., 1879.

*Dead.

Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Doe, Mary, 1902.
Dorr, Miss A. E., 1901.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliot, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. (2 year), 1902.
Farwell, H. G., 1901.
Flint, W. F., 1877.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Gowen, Miss E. G., 1901.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, W. D. F., 1899.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.
Knowles, A. C. (2 year), 1900.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.

*Dead.

Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2 year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Porter, G. E., 1888.
Preston, J. F., 1890.
Putney, H. N., 1899.
Quinby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Record, C. E., 1878.
Richardson, H. P., 1898.
Robertson, Miss M. L., 1900.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2 year), 1903.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tolles, B. D., 1898.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.

*Dead.

Wason, E. H., 1886.
Watson, D. G., 1903.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
White, M. J., 1903.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

SPECIMEN ENTRANCE EXAMINATION PAPERS, FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}} - \frac{1}{2}a\sqrt{x}$ and $3bx^2 - \frac{2}{3}ax^{\frac{1}{2}} + 4b$.

3. Multiply $(-4ab)$, $(3\sqrt{ab})$, $(-2\sqrt{-ab})$, $(3\sqrt{-ab})$. $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of $x^6 + y^6$, $x^{-1} - y^{-6}$, $x^{2m} + x^m - 2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a}+\sqrt{b}}$, $\frac{1}{a^{\frac{1}{2}}+b^{\frac{1}{3}}}$, to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax} + \frac{3}{by} = 5$ and $\frac{5}{ax} - \frac{3}{by} = 2$.

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x-2a+3a^2)^2$. Perform operations indicated.

8. $3ax^2 - 2x + 3b = 0$. Solve for x.

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3} + 1\frac{3}{7}$.

3. $3.014 + 27.900 \div .047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}} \times \frac{4}{3} \div \frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual, and compound interest on $1,200 for 3 years, 2 months, and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, liter, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in liters?

BOTANY.

1. What are the three principal parts of a plant, and what does each do for the plant?

2. What is the embryo? Of what parts does it consist? Where does the root originate? What part of the root takes food material from the soil?

3. What are the principal steps or periods in the life history of a plant?

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. Draw diagrams of the following leaves: (*a*) entire ovate; (*b*) lanceolate serrate; (*c*) lobed; (*d*) palmately cleft; (*e*) pinnately parted.

6. Draw diagrams of the following forms of inflorescence: raceme, spike, head, umbel, cyme.

7. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

8. To what families do the following plants belong: cucumber, peach, lettuce, cabbage, potato, corn, onions, celery, clover, strawberry?

9. How would you distinguish between an elm and an oak, a pine and a hemlock, an ash and a hickory?

10. What is the difference between a fruit and a seed?

ENGLISH.

The composition must be correct in spelling, grammar, and punctuation.

I.

Select any *four* of the following topics, and write a short composition on each:

1. The speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one*.

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir;* third singular, *aller;* third plural, *finir*. (*b*) Principal parts, *faire*, *venir*, *mettre*, *voir*, *prendre*.

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me this pen, if

you please. (6) I shall see him to-morrow, and he will give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston to-day, but she will be in Durham to-morrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre côté du sentier, tiré par un homme qu'il n'avait point aperçu et qui 'l ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d'Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, rencontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orsa tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitôt, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantômes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hameau en hameau, de chaumière en chaumière, il allait, il allait, il allait . . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces pauvres mains habituées à recevoir de petites piéces de monnaie

blanche. Le curé fit même des folies, des vraies folies; il était lancé, il ne se connaissait plus Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (a) Principal parts of brechen, gehen, halten, lesen, schlagen. (b) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schüchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.—[*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans hatte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechs- oder nach links zu schauen, und endlich im Sommer den Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet.—[*Hillern, Hoeher, als die Kirche.*]

(c) Elisabeth setzte sich unter eine überhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.—[*Storm*, *Immensee*.]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.
2. Draw a map showing Asia Minor, Macedonia, and the principal Grecian cities.
3. Locate, and with a sentence for each describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.
4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtæus, Lycurgus.
5. Give a brief account of the Peloponnesian war.
6. Give a brief account of the Expedition of the Ten Thousand.
7. Give an account of the life and work of Herodotus.
8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time, in the Transvaal?
2. Is it now day, or night, in Manila?
3. Describe the climate of Havana, Pekin, and Cape Nome.
4. State the causes of the variations in season, climate, day and night.
5. Describe the trade winds.
6. What ocean currents produce the fogs on the Grand Banks? Why?

7. What causes the high tides in the Bay of Fundy?

8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of thirty miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when twelve pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection, and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpendicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the pologon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate, and with a sentence for each describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott case.

7. Starting with 1789, explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term, and the election provisions for senators; for the members of the House of Representatives.

NHI

CATALOGUE

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1904--1905

CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1904-1905

U.S.

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CALENDAR.

1904

JULY

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1905

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1906

JANUARY

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COLLEGE CALENDAR.

1904.

Sept. 6-7. Examinations for admission begin Tuesday at 9 a. m.

Sept. 8. Regular college exercises begin Thursday at 10 a. m.

Oct. 12. Stated meeting of Trustees.

Dec. 23. First term ends Friday night.

WINTER VACATION.

1905.

Jan. 10. Second term begins Tuesday at 10 a. m.

Jan. 11. Stated meeting of Trustees.

March 22. Second term ends Wednesday night.

SPRING VACATION.

March 28. Third term begins Wednesday at 10 a. m.

April 12. Stated meeting of Trustees.

June 4. Baccalaureate sermon, Sunday.

June 6. Stated meeting of Trustees.

June 6. Prize drill, Tuesday a. m.

June 6. Smyth prize reading and speaking Tuesday evening.

June 7. Commencement day, Wednesday.

SUMMER VACATION.

Sept. 5-6. Examinations for admission begin Tuesday at 9 a. m.

Sept. 7. Regular college exercises begin Thursday at 10 a. m.

Oct. 11. Stated meeting of Trustees.

Dec. 22. First term ends Friday night.

1906.

Jan. 9. Second term begins Tuesday at 10 a. m.

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———————— *Professor of Military Science and Tactics.*

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RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

E. R. GROVES, A. B., B. D., *Associate Professor of English and Philosophy; Secretary of the Faculty.*

EDWARD L. SHAW, B. S., *Assistant Professor of Agriculture.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*

EDWARD H. HANCOCK, B. S., *Instructor in Mechanism and Woodwork.*

HENNING V. HENDRICKS, B. S., *Instructor in Physics and Electrical Engineering.*

HARRY F. HALL, *Instructor in Horticulture.*

A. R. ROSE, B. S., *Instructor in Chemistry.*

JOHN C. BRIDWELL, B. S., *Assistant in Zoology and Botany.*

MABEL E. TOWNSEND, A. B., *Associate Librarian, Registrar.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*

LENA B. ROWLEY, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

AGRICULTURAL EXPERIMENT STATION.

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Hon. GEORGE A. WASON . . .	New Boston
CHARLES W. STONE, A. M., *Secretary*	East Andover
Hon. WARREN BROWN . . .	Hampton Falls
Pres. WILLIAM D. GIBBS, *ex officio* .	Durham

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FRED W. MORSE, M. S., *Chemist and Vice-Director.*
FRANK WILLIAM RANE, B. Ag., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. S., *Agriculturist.*
E. DWIGHT SANDERSON, M. S., *Entomologist.*
EDWARD L. SHAW, B. S., *Associate Agriculturist.*
IVAN C. WELD, *Dairy Manufactures.*
HARRY F. HALL, *Associate Horticulturist.*

ASSISTANTS.

JOHN C. BRIDWELL, B. S., *Assistant Entomologist.*
H. D. BATCHELOR, B. S., *Assistant Chemist.*
———————— *Farm Foreman.*
MABEL MEHAFFY, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established

that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science"

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college"

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April tenth of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the

buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $10,500; and from various other sources, about $5,000.

GENERAL INFORMATION.

The New Hampshire College of Agriculture and the Mechanic Arts is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire county is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire county, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each

scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided,*

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise.

PRIZES.

I. *The Smyth Prizes.*—Through the generosity of the late ex-Governor Frederick Smyth, the following prizes have been offered: three prizes, one of twenty, one of fifteen, and one of ten dollars, for excellence in oratory. To the members of the sophomore and freshman classes, two prizes for reading, one of fifteen and one of ten dollars. Since the death of ex-Governor Smyth the prizes have been continued by Mrs. Marion C. Smyth.

II. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

III. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition	Free	$60.00
Text-books	$10.00 to	30.00
Military uniform for new students	16.00 to	16.00
Drawing instruments and materials	7.50 to	30.00
Fees*	20.00 to	20.00
Room rent, including fuel	30.00 to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00 to	122.50
Total	$188.50	$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology, and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology, and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a given term are required to register at the president's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

Students shall be admitted to classes only upon presentation of their registration card.

ATTENDANCE.

All students are required to attend chapel; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No student shall receive his registration card or attend classes until his bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen nor more than twenty-one credit hours per week of class-room work or its equivalent, exclusive of military tactics, without the consent of the faculty.

LOSS OF STANDING.

No student shall be registered in any class until he has completed three fourths of the work of the preceding year, and all the work required up to the beginning of that year.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the two days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The thesis shall be typewritten or printed upon standard thesis paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt lettered on first cover with title, name of author, degree sought, and year of graduation. This bound copy shall be approved by the faculty, filed, and left with the college librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' courses will be accepted which does not contain an average of at least eighteen credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 3 p. m. on the next day, Wednesday.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school,

prayer-meetings, and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochere* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for fifty thousand volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting-room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drawing-room, and recitation rooms for biology, mechanical engineering, philosophy, and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity.

The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is of cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating room, and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy, and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room, and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used

for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

(Chemical and Physical Laboratories.)

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity, and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum, and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic, and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room, and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory, from the neighborhood of which masses of iron have been excluded, so that magnetic measurements can be made with a good degree of accuracy; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments, the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery, and pattern making are taught. Practice is given in the use of carpenters' tools, and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating two hundred and forty horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, ninety-five feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding,

tempering, and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological, and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making, and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns, and refrigerators, together with the engine.

BARNS.

The cattle barn is a wooden structure, the main portion of which is 50 by 100 feet, two stories in height, with a large basement. It has a one-story L, 40 by 100 feet, with a basement under two thirds of it. This barn is a model structure, erected at an expense of about ten thousand dollars. It has accommodations for about sixty head of cattle, which are provided with sanitary stalls. There are the necessary divisions for storage of hay, grain, and seeds, and rooms for milk scales, ensilage cutter, and repair shop. In addition there is a cold-storage room and a feed room. There are two silos, each having a capacity of about one hundred and twenty-five tons.

A second barn is used by the agricultural department for storing hay and implements, and stabling the department horses.

A third barn, about 30 by 60 feet, is used at present for keeping the horses and implements employed by the horticultural department.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses besides a propagating hallway. Connected with the glass structure is a workroom 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes, and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction, and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds, and are adapted for forcing vegetables, while the remaining houses have raised beds, excepting the centre of the palm house, which is a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat, and oats; and with a large number of lantern slides, grass charts, and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools, and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties, and various makes of patent wire fences.

The college farm, with its three hundred acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flock of thoroughbred Southdowns and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been

fitted up for the judging of live stock, instruments for precise measurements are provided, and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern, and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past year. The completion of Morrill Hall gives this department the entire second floor, containing offices, lecture-room, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil, and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design, and offer every facility for modern work. During the fall term over one hundred varieties of apples are studied by the students. Persimmons and tropical fruits are received from Florida, grapes and pears from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England, and Canada. Large numbers of varieties of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens, and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has sixty varieties in bearing. Grapes, peaches, apples, cher-

ries, and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs, and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of sixty acres of old forest growth is owned by the college. It is located close at hand, and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds, and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

Through the courtesy of leading manufacturers of dairy and creamery appliances, all available space is filled with various forms of cream separators, milk coolers, churns, and other dairy appliances. The most approved appliances for milk testing form a part of the regular equipment. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about twenty-five farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work, and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories, and contain the forty horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and the large compound duplex pump which receives water under a head of fifteen feet through an eight-inch pipe from a reservoir one half-mile distant, and forces it through underground mains to the various

hydrants and buildings, or through nozzles for measurements during tests. This pump, with its long supply pipe, a ten-inch standpipe, and a 6,000-gallon standpipe, furnish an apparatus for an extensive series of hydraulic experiments. It is fitted with indicator motions and other necessary equipment for complete duty tests.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression, and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a 5½ by 8 by 7 air pump; and the usual supply of scales, gauges, thermometers, and small apparatus. The three sectional boilers, and the one hundred horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer, and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and, when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber,

patterns, and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making, and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; twelve benches with vises; and a large number of small tools, including micrometer, calipers, and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains thirteen Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding, and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks, and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass, and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-

room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism, the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor, and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the five-hundred-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete fifty-five-light Edison iso-

lated electric lighting plant, arc, and incandescent lamps, and standard forms of voltmeter, ammeter, and transformer.

In the dynamo laboratory, a Westinghouse junior engine has been installed. It is capable of developing about twenty-three-brake horse-power under one hundred pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted, and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. A set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments, have been purchased for this shop.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious, and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern, and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books, and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes, and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of ten thousand bound volumes and six thousand pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about eight thousand well selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his

time during the rest of his course being given to these subjects.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, seven hours per week of chemical work during the junior year, and eight hours per week during the senior year. Two years of German will be required, and French is recommended to be taken by students intending to enter the division.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care, and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical, and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and

professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations, and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances, and the methods of designing, building, and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN TECHNICAL CHEMISTRY.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations, and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the refer-

ence works and chemical periodicals which the library contains. The large and well-furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

The United States government has furnished arms and equipment for two hundred men. The facilities for outdoor drill are unexcelled. Abundant ammunition is supplied by the federal government for target practice at the college rifle range. The battalion wears a neat cadet gray uniform, and is under the command of an officer of the regular army, detailed by the secretary of war.

The aim of the military department is to qualify graduates that they may have full practical knowledge not only of drilling but of supplying and handling a company in actual service.

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the Freshman class must offer studies amounting to a total of fourteen units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		1 unit
" " C		2 units
" " D	(Physics and Botany)	2 "
" " E		2 "
		10 units
	(Optional)	4 "

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		2 "
" " C		2 "
" " D	(Physics)	1 unit
" " E		2 units
		10 units
	(Optional)	4 "
Total		14 units

ENGINEERING COURSES AND COURSE IN TECHNICAL CHEMISTRY.

Required	Group	A	3 units
"	"	B	1 unit
"	"	C	3 units
"	"	D (Physics)	1 unit
"	"	E	2 units
			10 units
		(Optional)	4 units
Total			14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1906, 1907, and 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form, and struc-

ture; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1906, 1907, and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

*GROUP B.

History of the United States.—Channing's Students' History of the United States, or an equivalent, with four hundred pages additional reading. Constitution of the United States. This is to represent not less than three exercises per week during one year of the high school course.

—1 unit.

A combination of Ancient History and English History. The amount of Ancient History required is represented by Wolfsen's Essentials. The amount of English History required is represented by either Larned's or Montgomery's History of England.

—1 unit.

History of Greece.—Myers' larger work, or an equivalent.

History of Rome to 1814.—An adequate preparation would be represented by Myers' Rome, its Rise and Fall, and Chapters I to VI, of Myers' Middle Ages; or by Allen's Roman People, and Emerton's Introduction to the Middle Ages.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals, and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

*A candidate may present either the first and third or the first and second units of this group.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

— 1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of seventy-five class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

— 1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of fifty plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

— 1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.

— ½ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.

— ½ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.

— ½ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

— ½ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives, and pronouns, the elements of syntax, the uses of the modal auxiliaries, and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Kaiser and Monteser's Brief German Course.

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

— 2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least four hundred pages. The following books are recommended:

1. Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, LaTulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

— 2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.

— 2 units.

Vergil, six books.
Cicero, six orations.

— 2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

— 2 units.

A certificate from an approved academy or a high school will be accepted in place of an examination, upon any subject required for admission. Every certificate must state the amount of work done by the student, his proficiency, and the text-books used; and in case it is not evident that the student is thoroughly prepared, an examination will be required.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the Senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zoötechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant, and the animal, and the relations of each to the other. The course is given to the First Year Short Course Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning, and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods, and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains, and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds, and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and

experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape, and other forage crops. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Short Course Students.

Three exercises per week. S.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution, and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops, and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock, and the raising of poultry. It is a general elementary course especially arranged for the Second Year Short Course Students.

Three exercises per week. F.

Agriculture 7. Breeds of Cattle.

Lectures and recitations upon the origin, history, characteristics, adaptability, and management of the different breeds of cattle.

A study of the beef breeds from the standpoint of the demands of the market; the methods of beef production and the preparation of cattle for sale and exhibition.

A study of the dairy breeds from the standpoint of the production of milk, butter, and the selection of individuals for the dairy herd. Practice in judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 8. Breeds of Sheep and Swine.

Lectures and recitations upon the origin, history, characteristics, and adaptability of the different breeds; care and management of sheep under various conditions; different grades of wool, their uses and value; comparative quality and value of the different portions of the carcass; the raising of early lambs; care and management of swine; selection of breeding stock; preparation of swine for exhibition; influence of different kinds of food upon pork production. Practice in judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 9. Breeds of Horses.

Lectures and recitations upon the origin, history, characteristics, adaptability, and management of the different breeds; classification, breeding, and preparation of the different classes for the market; training and the proper methods of harnessing and hitching. Practice in judging the different classes. For Agricultural Sophomores.

Three exercises per week. S.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including

a discussion of inbreeding, crossing, and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming, and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1904. Elective for Agricultural Seniors.

Four exercises per week. F.

RURAL ENGINEERING AND FARM ECONOMY.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work, and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

1. Ecology.

Recitation and laboratory work on the adaptations of plants to their environments. For First Year Short Course Students.

Three exercises per week. F.

2. Structural and Physiological Botany.

Recitations and laboratory work. For First Year Short Course Students.

Two exercises per week. W.

3. Structural Botany.

For agricultural and general Freshmen and first year short course men. Open to students who present entrance Botany or have completed courses 1 and 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures and laboratory work of some of the more important fungous and other diseases of plants and the means of preventing their injuries. For Agricultural Sophomores and Second Year Short Course Students.

Two exercises per week. F.

5. Advanced Systematic Botany.

A study of some group of plants in the local flora involving laboratory and field work. For Agricultural and General Seniors. Open to those who have completed Course 3.

Three exercises per week. F.

6. Advanced Botany.

Courses 6 and 7 consist of special advanced work arranged to suit the needs of individual students. For Agricultural and General Seniors. Open to those who have completed Course 3.

Three exercises per week. W.

7. Advanced Botany.

For Agricultural and General Seniors.

Three exercises per week. S.

CHEMISTRY.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. He will have practice in the writing of reactions, and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject

must be preceded by Chemistry Courses 1, 2, and 3. For Agricultural and Chemical Sophomores; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food and Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter, and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Sophomores; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Technical Chemistry Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior, and Senior years.

Open only to students who have completed Chemistry 4.

Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agri-

cultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel, and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary, and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.
Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.
One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular, and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13, and is open to students who have completed Courses 1, 2, and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Two exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the

quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Technical Chemistry Course is given up to the special study of some selected subject in any branch of chemical science, and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Course in Technical Chemistry who are in advance of their course.

DAIRYING.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the Babcock test and its application on the dairy farm, and in the creamery or milk inspector's laboratory. Under the guidance of the instructor the student will practice testing milk and its products until competent to perform the work. In connection with the lactometer the test will be made the subject of practice in estimating milk solids. For Agricultural Juniors.

Five exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations, and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruc-

tion and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream. For Agricultural Juniors and students in ten weeks' course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation, and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors.

Open to those who have completed Course 1.

Three exercises per week. S.

4. Butter-making.

Text-book study, recitations, and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Course 1.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing, and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural Seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings, creameries, and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-year Students.

Five exercises per week. S.

8. Practical Work.

For students in ten weeks' course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation, and care of dairy and creamery appliances. For students in the ten weeks' course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations, and lectures. For students in the ten weeks' course in Dairying.

One exercise per week. W.

DRAWING.*

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject. They aim to cultivate accurate observation, careful thinking in applying the underlying theories, and manual dexterity in making the graphic records. The immense value of drawing as a means of expression is coming to be more and more fully recognized.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective, and may be taken only by those with adequate preparation.

*Do not purchase drawing instruments or materials until you have consulted the instructor as to what is neccssary. Students intending to take an engineering course should purchase high grade instruments.

1. Industrial Drawing.

Free-hand lettering, elementary free-hand industrial drawing. For all Freshmen.

Two exercises per week. F.

2. Industrial Drawing.

Use of instruments. Mathematical drawing. For all Freshmen.

Two and one half exercises per week. W.

Note.—Alternating with Shop-work on Wednesdays.

3. Industrial Drawing.

Mathematical drawing, working drawings, tracings, blue prints. For Engineering and Chemical Freshmen.

Three exercises per week. S.

4. Orthographic Projection.

Drawing exercises in practice of this method of representation. For Engineering and Chemical Sophomores.

Two exercises per week. F.

5. Descriptive Geometry.

Recitations and drawing exercises in the solution of problems in plane and solid geometry, by means of orthographic projections, including shades, shadows, and perspective. For Engineering Sophomores.

Two exercises per week. W.

6. Continuation of 5.

Five exercises per week. S.

7. Continuation of 6.

For Engineering Juniors.

Two exercises per week. F.

5, 6, and 7 are open only to those who have passed Mathematics 2.

8. Technical Drawing.

Drawing exercises on making "working drawings," and study of details of drafting-room practice. For Engineering Juniors.

Two exercises per week. W.

9. Continuation of 8.

Two exercises per week. S.

10. Continuation of 9.

For Mechanical Engineering Seniors.

Three exercises per week. F.

11. Industrial Drawing.

Light and shade drawing from the cast and from still life; pencil sketching; details of building construction; projection drawing; perspective. For General Course Sophomores.

Two exercises per week. W.

12. Continuation of 11.

Three exercises per week. S.

13. Industrial Drawing.

Study of architectural detail; use of color; pencil sketching; perspective; historic ornament. For General Course Juniors.

Three exercises per week. F.

14. Continuation of 13.

Two exercises per week. W.

15. Continuation of 14.

Three exercises per week. S.

16. Drawing and History of Painting.

Antique figure from casts, pencil sketching, charcoal drawing, use of water colors; study of the history of painting. For General Course Seniors.

Three exercises per week. F.

17. Continuation of 16.

Three exercises per week. W.

18. Continuation of 17.

Three exercises per week. S.

Subjects in Nos. 11 to 18 inclusive are elective in the General Course.

ELECTRICAL ENGINEERING.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week. F.*

This course is taken up upon completion of physics 5, and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo, and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions, and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. I, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, second term, *three exercises per week. W.*

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Engineering Juniors, first five weeks, *three exercises per week. S.*

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers, and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, first term, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic, and practical systems, and their conversion factors. The general theorems of the electrostatic field are devel-

oped mathematically, the laws are stated, and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism, and the magnetic field due to magnets, magnetic shells, and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 5 and 6.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 5 and 6. The text used is S. P. Thompson's "Elementary Lessons in Electricity and Magnetism," accompanied by notes based upon the work of Maxwell, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson, and others.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *six exercises per week. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L, and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6, 7, 8, and 9 are based.

7. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, first term, *five exercises per week. F.*

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiences, and losses of machines of different types receive due attention.

8. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *five exercises per week. W.*

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week. S.*

Steinmetz's text is used in class.

Electrical Engineering 10 to 18 are taken by Seniors of the Electrical Engineering Course.

10. The Telephone.

First term, *three exercises per week for six weeks. F.*

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems, and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

11. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and

connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's "American Telegraphy."

12. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

13. Electric Lighting.

Three exercises per week. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

14. Power Distribution for Electric Railroads.

Three exercises per week. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

15. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16, and 17 are consecutive, and consist in the measurement of resistances, inductances, the calibration of a bal-

listic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output, and efficiency curves of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter, and the study of polyphase machinery constitute the remainder of the course.

The laboratory manual used is Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

16. Electrical Laboratory.

Two exercises per week. W.

17. Electrical Laboratory.

Two exercises per week. S.

18. Thesis.

Three exercises per week. S.

19. Alternating Currents.

Three exercises per week for five weeks. S.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 1, 2, and 3. The text-book used is Franklin and Williamson's "Alternating Currents."

20. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

21. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting, and electric railroads, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 19 and 20.

Courses 22 and 23 are taken by Technical Chemistry Seniors.

22. Industrial Electricity.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries, e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps, and the general principles of electrical distribution.

23. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

ENGLISH.

Required of all Freshmen.

1. Rhetoric and Composition.

Two exercises per week. F.

2. Rhetoric and Composition.

Two exercises per week. W.

3. Rhetoric and Composition.

One exercise per week. S.

4. Chaucer to Wordsworth. Lectures and Readings.

Open to Juniors.

Two exercises per week. W.

5. Wordsworth to Browning. Lectures and Readings.

Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

6. Literary Criticism.

Recitations, readings, and a thesis. Open to Seniors.

Two exercises per week. F.

7. Course in Debating.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Five exercises per week. F.

11. Rhetoric.

Two exercises per week. W.

12. Rhetoric.

One exercise per week. S.

Students in the two years' course showing ability to carry the work are given Courses 1, 2, and 3, instead of 10, 11, and 12.

FORESTRY.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade, and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops, and climate; establishment and management of plantations of forest trees.

For Agricultural Juniors.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving, and managing woodlands; estimating and measuring standing timber, and harvesting forest products. The physical properties of woods and forest

botany and entomology are here further considered. Seminary and laboratory work.

Elective for Agricultural Seniors.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for Agricultural Seniors.

Three exercises per week. S.

FRENCH.

Courses 1, 2, and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation, and Composition continued.

Three exercises per week. W.

6. French Prose, History, and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine, and Molière.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

GEOLOGY.

1. Mineralogy.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General, and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Juniors.

Open to those who have completed Zoology 1, 2, and 3, and Chemistry 1 and 2.

Four exercises per week. F.

GERMAN.

Courses 1, 2, and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5, and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives, and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading, and Translation; Poems. Dictation.

Three exercises per week. W.

3. Reading, Translation, and Composition; Sight Translation. Dictation.

Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.

Three exercises per week. F

5. German Prose of the Nineteenth Century continued. Composition, outside reading.

Three exercises per week. W.

6. Easier works of Lessing and Schiller. Composition.

Three exercises per week. S.

7. Masterpieces of German Literature. Lessing and Schiller.

Three exercises per week. F.

8. Goethe. German Ballads and Lyrics.

Three exercises per week. W.

9. General review of German Literature, outside reading.

Three exercises per week. S.

10, 11, and 12. Goethe and his contemporaries. Given in 1904-1905.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation, and paraphrasing the assigned texts.

HISTORY.

In the courses in history an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 being offered in 1905-'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 9 are open only to those who have passed in History and Constitution of the United States.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. S.

In 1904-1905 Courses 10, 11, and 12 will be given instead of 7, 8, and 9. Open to Juniors and Seniors.

Three exercises per week. F., W., and S.

7. Political and Constitutional History of the United States from 1783 to 1840.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1840 to 1865.

For General Course Juniors and Agricultural Seniors.

Three exercises per week, W.

9. Political and Constitutional History of the United States since 1865.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

HORTICULTURE.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests, and the scope and importance of its field.

For Agricultural Freshmen.

Three exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification, and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties, and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations, and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work, and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and first year two-year men.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification, and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations, and laboratory work.

For Agricultural Juniors and second year two-year men.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations, and laboratory work. The culture and uses or ornamental plants are studied together with their history, classification, characteristics, propagation, and uses on private and public grounds.

For Agricultural Juniors and second year two-year men.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations, and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out, and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. W.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

For Agricultural Seniors.

Two exercises per week. S.

MATHEMATICS.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Three exrcises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work, and plotting, including compass, transit, plane-table, and level work. Required of Engineering, Chemical, and Agricultural Freshmen. Elective for General Course Freshmen.

5. Analytic Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets, and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized, and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For first year short course students.

Three exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes, and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms, and modes of connection. For Engineering Sophomores.

Two exercises per week. F.

2. Mechanism.

Continuation of 1.

Two exercises per week. W.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. S.

4. Mechanics of Engineering.

Courses 4, 5, and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive.

Two exercises per week. F.

5. Mechanics of Engineering.

Four exercises per week. W.

6. Mechanics of Engineering.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers, and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Courses 4 and 5, and Physics 1 and 2.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S

11. Materials of Construction.

Recitations on the production, properties, uses, and preservation of engineering materials. For Engineering Seniors. Continuation of Courses 4-6.

Four exercises per week. F.

Course 4 is open only to those who have taken Courses 4, 5, and 6, and Chemistry 2.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6 and 8 to 10.

Three exercises per week. F.

13. Hydraulic Motors.

For Mechanical Engineering Seniors.

Course 13 is open only to those who have taken Course 12.

Three exercises per week. W.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week. S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

Course 19 is open only to those who have taken Courses 4, 5, 6, and 11.

Four exercises per week. W.

20. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. S.

MILITARY DRILL.

Practical instruction in drill and gymnastic exercises.

Four exercises per week throughout the Freshman, Sophomore, and Junior years.

MILITARY SCIENCE.

Theoretical instruction in drill regulations and the elementary principles of military science.

One exercise per week throughout the Freshman, Sophomore, and Junior years; three themes in the Senior year.

PHILOSOPHY AND EDUCATION.

1. The History of Educational Theory.

Open to Sophomores.

Two exercises per week. W.

2. Ethics.

Open to Sophomores.

Two exercises per week. S.

3. Psychology.

Open to Juniors and Seniors.

Three exercises per week. F.

4. The Philosophy of Education.

Open to Juniors and Seniors.

Three exercises per week. W.

5 or 6. Logic.

On alternate years a course in advanced logic will be given. Course 5 will be offered in 1905.

Open to Juniors and Seniors.

Three exercises per week. S.

PHYSICS.

Courses 1 to 5 are required of students in the Engineering and Technical Chemistry courses and presupposes a preparation in Mathematics through Trigonometry.

Courses 9 to 13 are required of students in the Agricultural Course. Students in the General Course are required to elect either 1 to 5 or 9 to 13.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids, and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations, and problem work. The text used is Ganot's Physics. Reference is made to Ame's Theory of Physics, Watson's Physics, and other standard treatises.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as the text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively, and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term, and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity, and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences.

6. Elements of Least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data, and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants, and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use, or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin, and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings, and the simple electrical measurements.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem, and in thinking and acting for himself.

Physics 9 to 13 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. These courses are accepted as the work required in the course in agriculture. Their completion does not prepare the student to enter Courses 7 and 8.

9. Mechanics.

Agricultural Freshmen, three exercises per week. S.

This is a briefer course than Physics 1, and aims to meet the needs of the student wishing to obtain some knowledge of the simpler physical phenomena, as related to the Science of Agriculture.

10. Heat.

Agricultural Sophomores, three exercises per week for six weeks. F.

11. Light.

Agricultural Sophomores, three exercises per week for five weeks. F.

12. Sound.

Agricultural Sophomores, three exercises per week for the last four weeks. F.

13. Electricity and Magnetism.

Agricultural Sophomores, three exercises per week throughout the term. W.

Physics 14 and 15 are intended to acquaint the student with the fundamental principles and facts of physics.

14. Elementary Physics.

First year of the short course in Agriculture, *three exercises per week. S.*

15. Elementary Physics.

Second year of the short course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 14.

POLITICAL SCIENCE.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court.

Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings, and lectures.

For Agricultural and General Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1904-'05.

Open only to those who have taken Course 1.

Three exercises per week W.

5. Socialism and Social Reform.

Readings, recitations, and lectures.

For Agricultural and General Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in 1904-'05.

Open only to those who have taken Course 1.

Three exercises per week. S.

7. Public Finance.

For Agricultural and General Seniors.

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

6. International Law.

For Agricultural and General Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week S.

SHOP WORK.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery, and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Wood Work.

A continuation of 1. For all male Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternate with Drawing on Wednesdays.

3. Wood Work.

For Chemical and Engineering Freshmen.

Two exercises per week. S.

4. Iron Work.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. F.

5. Iron Work.

For Chemical and Engineering Sophomores.

Two exercises per week. W.

6. Iron Work.

For Engineering Juniors.

Two exercises per week. F.

7. Iron Work.

For Engineering Juniors.

Two exercises per week. W.

8. Iron Work.

For Engineering Juniors.

Two exercises per week. S.

9. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. F.

10. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. W.

11. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. S.

12. Wood Work.

For first year two-year students.

Three exercises per week. W.

13. Iron Work.

For first year two-year students.

Three exercises per week. S.

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. F.

15. Special Shop Work.

From one to four exercises per week. W.

16. Special Shop Work.

From one to four exercises per week. S.

SPANISH.

Spanish 1, 2, and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. F., W., S.

Elective for General Course Students in Sophomore, Junior, or Senior year.

ZOOLOGY.

1. Introductory Zoölogy.

A general introduction to the study of animal life, by means of lectures and laboratory dissections of the principal types. For Agricultural and General Sophomores and second year short course students.

Three exercises per week. F.

2. Animal Biology.

A general study of the nature and processes of animal life, with special attention to heredity, variation, development, and mental powers.

Open to students who have taken Course 1.

Three exercises per week. W.

3. Entomology.

A review of the classification, structural characters, and biological relations of insects, with a special study of those injurious to cultivated crops and domestic animals, and of the means of preventing their injuries.

Open only to those who have taken Courses 1 and 2.

Three exercises per week. S.

ZOOLOGY.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Elementary Biology.

A general study of the lower forms of life by means of lectures and laboratory studies of the simplest plants and animals, forming an introduction to the study of both animal and plant life. For Agricultural and General Sophomores.

Three exercises per week. F.

2. Invertebrate Zoölogy.

The structure and life of the higher invertebrate animals with special study of insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits, and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery, and insecticides for combating truck and fruit insects. For Agricultural Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits, and classification of the different orders of insects. Lectures and laboratory dissections, field collecting and classification. For General Sophomores completing Course 2.

Four exercises per week. S.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dis-

sections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Five exercises per week. F.

6. Principles of Zoölogy.

The history, fundamental principles, problems, and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors having completed four previous courses.

Three exercises per week. W.

7. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors.

One exercise per week. W.

8. Histology.

A study of the minute anatomy or cell structure of domestic animals and man; methods of preparing, staining, and mounting specimens and sections of tissues; the use of the microscope and accessories. For Agricultural and General Juniors completing Course 5.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors having completed Course 3.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12, and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior Year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily. Attendance is required of all students.

Military drill: Fall term M., T., Th., F., 7 to 7.50 a. m. Winter and Spring terms, M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

FRESHMAN YEAR.

For all Four-Year Courses.

FALL TERM.

	Exercises.
Rhetoric—English 1	2
Algebra—Mathematics 1	5
Wood Work—Shop Work 1	2
Drawing—Drawing 1	2
†History—History 1 or 4	3
French—French 1 or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
*Solid Geometry—Mathematics 2	3
Military Science	1

WINTER TERM.

Rhetoric—English 2	2
Trigonometry—Mathematics 3	4
Wood Work—Shop Work 2	2½
Drawing—Drawing 2	2½
†History—History 2 or 5	3
French—French 2 or German—German 2	3
Inorganic Chemistry—Chemistry 2	3
Military Science	1

*Optional. Attention is called to preparation required for Drawing 5, 6 and 7. (See page 61.)

SPRING TERM.

Rhetoric—English 3	1
†Surveying—Mathematics 4	3
Mechanics—Physics 1	3
‡Mechanics—Physics 9	3
†Botany—Botany 3	3
†Wood Work—Shop Work 3	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 3	3
†History—History 3 or 6	3 or 4
French—French 3 or German—German 3	3
†Organic Chemistry—Chemistry 3	2
Military Science	1

COURSES IN AGRICULTURE.

Sophomore Year.

FALL TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Physics 10, six weeks Physics 11, six weeks Physics 12, four weeks	3
Horticulture 2	1
Botany 4	2
Agriculture 7	3
Military Science	1

WINTER TERM.

German 5	3
Chemistry 4	3
Zoölogy 2	3
Physics 13	3

†In the first and second terms History is taken by women in place of Shop Work. It is also taken by students who are prepared for advanced work. In the third term Shop Work and Drawing are taken by students intending to complete either of the Engineering Courses or the course in Technical Chemistry; Botany is taken by all other students. Horticulture is taken by students intending to complete the Agricultural Course. History is taken by students intending to complete the General Course. Students in the General Course also elect between Surveying and Organic Chemistry.

‡For Agricultural students and such general students as elect it.

Horticulture 3	3
Agriculture 8	3
Military Science	1

SPRING TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 9	3
Military Science	1

JUNIOR YEAR.

FALL TERM.

Chemistry 6	3
Geology 2	4
Dairying 1	5
*Zoölogy 5	5
Horticulture 4	3
Agriculture 2	3
Military Science	1

WINTER TERM.

Chemistry 7	2
English 4	2
*Zoölogy 6	1
*Zoölogy 7	3
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
Agriculture 11	4
Military Science	1

SPRING TERM.

English 5	2
Geology 1	3
Horticulture 5	3
Agriculture 4	3
Agriculture 12	3
Agriculture 13	4
*Zoölogy 8, 9, or 10	3
Military Science	1

*Zoölogy Courses in Biological Division marked * above.

NOTE.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11, and Agriculture 12.

SENIOR YEAR.

FALL TERM.

(Required.)	Exercises per week.
Political Science 2 and 3	5
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)	Exercises per week.
Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)	
Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Orthographic Projection—Drawing 4	2
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
German—German 4	3
Forge Shop—Shop Work 4	2
Mechanism—Mechanical Engineering 1	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
Descriptive Geometry—Drawing 5	2
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
German—German 5	3
Machine Shop—Shop Work 5	2
Mechanism—Mechanical Engineering 2	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Electricity and Magnetism—Physics 5	3
German—German 6	3
Descriptive Geometry—Drawing 6	5
Mechanism—Mechanical Engineering 3	2
Military Science	1

COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

FALL TERM.

Mechanics of Engineering—Mechanical Engineering 4	2
Theoretical Electricity—Electrical Engineering 4	3
Least Squares and Precision of Measurements—Physics 6	3

	Exercises per week.
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1	3
Descriptive Geometry—Drawing 7	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Theoretical Electricity—Electrical Engineering 5	3
Technical Drawing—Drawing 8	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3 Theoretical Electricity—Electrical Engineering 6	
Technical Drawing—Drawing 9	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Theoretical Electricity—Electrical Engineering 7	5
Mechanical Laboratory—Mechanical Engineering 14	2
The Telephone, Electrical Engineering 10, six weeks The Telegraph, Electrical Engineering 11, six weeks Storage Batteries, Electrical Engineering 12, three weeks	3
or French—French 4	3
Hydraulics—Mechanical Engineering 12	3
Electrical Laboratory—Electrical Engineering 15	2

WINTER TERM.

	Exercises per week.
Electrical Laboratory—Electrical Engineering 16	2
Electric Lighting—Electrical Engineering 13	3
Power Distribution for Electric Railroads—Electrical Engineering 14	3
Mechanical Laboratory—Mechanical Engineering 15	3
Theoretical Electricity—Electrical Engineering 8	5
Multiple Expansion Engines—Mechanical Engineering 17	3
or French—French 5	3

SPRING TERM.

Mechanical Laboratory—Mechanical Engineering 16	2
Gas and Hot Air Engines—Mechanical Engineering 18	3
Alternating Current Phenomena—Electrical Engineering 9	3
or French—French 6	3
Electrical Laboratory—Electrical Engineering 17	2
Political Economy—Political Science 1	5
Thesis—Electrical Engineering 18	3

COURSE IN MECHANICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos—Electrical Engineering 1	3
Iron Work—Shop Work 6	2
Descriptive Geometry—Drawing 7	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Iron Work—Shop Work 7	2

	Exercises per week.
Technical Drawing—Drawing 8	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3, five weeks Alternating Currents—Electrical Engineering 19, five weeks	3
Iron Work—Shop Work 8	2
Technical Drawing—Drawing 9	2
Military Science	1

SENIOR YEAR.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Hydraulics—Mechanical Engineering 12	3
Technical Drawing—Drawing 10	3
Mechanical Laboratory—Mechanical Engineering 14	2
Iron Work—Shop Work 9	2
Alternating Currents, Electrical Engineering 20, eight weeks Applications of Electricity, Electrical Engineering 21, seven weeks	3
English 6	2

WINTER TERM.

Machine Design—Mechanical Engineering 19	4
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
Iron Work—Shop Work 10	1
Hydraulic Motors—Mechanical Engineering 13	3
Specifications and Contracts—Mechanical Engineering 20	3
Thesis	2

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18	3
Mechanical Laboratory—Mechanical Engineering 16	2
Political Economy—Political Science 1	5
Iron Work—Shop Work 11	2
Specifications and Contracts—Mechanical Engineering 21	3
Thesis	3

COURSE IN TECHNICAL CHEMISTRY.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Orthographic Projection—Drawing 4	2
German—German 4	3
Chemical Laboratory—Chemistry 4	5
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
German—German 5	3
Chemical Laboratory—Chemistry 10	7
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Mineralogy—Geology 1	3
German—German 6	3
Organic Chemistry—Chemistry 8	2
Chemical Laboratory—Chemistry 11	3
Electricity and Magnetism—Physics 5	3
Military Science	1

Junior Year.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6	3
Organic Chemistry—Chemistry 9	3
French—French 4	3
Mechanics of Engineering—Mechanical Engineering 4	2
Graphic Statics—Mechanical Engineering 7	2
Chemical Laboratory—Chemistry 11	4
Military Science	1

WINTER TERM.

Chemical Laboratory—Chemistry 11	4
Industrial Chemistry—Chemistry 13	2
Mechanics of Engineering—Mechanical Engineering 5	4

	Exercises per week.
French—French 5	3
Physical Laboratory—Physics 7	3
Debating—English 7	1
Military Science	1

SPRING TERM.

Chemical Laboratory—Chemistry 11	4
Metallurgy—Chemistry 14	2
Mechanics of Engineering—Mechanical Engineering 6	5
French—French 6	3
Physical Laboratory—Physics 8	3
Military Science	1

SENIOR YEAR.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21	8
Iron Work—Shop Work 4	2
Chemical Journals—Chemistry 12	1
Steam Engineering—Mechanical Engineering 8	4
Industrial Electricity—Electrical Engineering 22	3

WINTER TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	8
Chemical Journals—Chemistry 12	1
Physical Chemistry—Chemistry 15	3
Industrial Electricity—Electrical Engineering 23	3
Chaucer to Wordsworth—English 4	2

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	6
Chemical Journals—Chemistry 12	1
Assaying—Chemistry 19	1
Physical Chemistry—Chemistry 16	2
Political Economy—Political Science 1	5
Wordsworth to Browning—English 5	2

GENERAL COURSE.

SOPHOMORE YEAR.

FALL TERM.

	Exercises per week.
Elementary Biology—Zoölogy 1	3
German—German 4	3

	Exercises per week.
*Chemical Laboratory—Chemistry 4	3
Heat and Light—Physics 2 and 3, or Physics 10, 11, and 12	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 5	5
*Spanish—Spanish 1	3
Military Science	1

*Elect 7 exercises.

WINTER TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
Sound and Electricity—Physics 4 and 5 or Physics 13	3
*History—History 2 or 5	3
*Invertebrate Zoölogy—Zoölogy 2	3
*Differential Calculus—Mathematics 6	5
*Industrial Drawing—Drawing 11	2
*Spanish—Spanish 2	3
*Philosophy 1	2
Military Science	1

*Elect 10 exercises.

SPRING TERM.

Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 5	3
*History—History 3 or 6	3
*Entomology—Zoölogy 4	4
*Chemical Laboratory—Chemistry 10	3
*Industrial Drawing—Drawing 12	3
*Integral Calculus—Mathematics 7	5
*Philosophy 2	2
*Spanish—Spanish 3	3
Military Science	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science and English 7.

FALL TERM.

Psychology—Philosophy 3	3
French—French 4	3
American Political History—History 7	4
Elementary Geology—Geology 2	4

	Exercises per week.
Chemistry of Plant Growth—Chemistry 6	3
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Least Squares and Precision of Measurements—Physics 6	3
Industrial Drawing—Drawing 13	3
Differential Equations—Mathematics 8	2
Spanish—Spanish 1	3
Vertebrate Anatomy and Physiology—Zoölogy 5	5
Military Science	1

WINTER TERM.

French—French 5	3
American Political History—History 8	3
English 4	2
Philosophy of Education—Philosophy 4	3
Money and Banking, or International Law—Political Science 4 or 6	3
Chemistry of Food and Nutrition—Chemistry 7	2
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Physical Laboratory—Physics 7	3
Industrial Drawing—Drawing 14	2
Quaternions—Mathematics 9	2
Principles of Zoölogy—Zoölogy 6	3
Spanish—Spanish 2	3
Economic Ornithology—Zoölogy 7	1
Debating—English 7	1
Military Science	1

SPRING TERM.

French—French 6	3
Mineralogy—Geology 1	3
Logic, or Science of Thought—Philosophy 5 or 6	3
American Political History—History 9	2
Socialism or Finance—Political Science 5 or 7	3
English—English 5	2
Industrial Drawing—Drawing 15	3
Chemical Laboratory—Chemistry 10 or 11	3
Physical Laboratory—Physics 8	3
Spanish—Spanish 3	3
Debating—English 7	1
Histology—Zoölogy 8	3
Advanced Economic Entomology—Zoölogy 9	3
Advanced Entomology—Zoölogy 10	3
Military Science	1

Senior Year.

Sixteen exercises required; all elective.

FALL TERM.

	Exercises per week.
Laws of Business—Political Science 2 Constitutional Law—Political Science 3	5
Psychology—Philosophy 3	3
French—French 7	3
Literary Criticism—English 6	2
German—German 7	3
Chemical Laboratory—Chemistry 10 or 11	3
Advanced Zoölogy—Zoölogy 11	4
Advanced Botany—Botany 5	3
Drawing and History of Painting—Drawing 16	3
Spanish—Spanish 1	3
Thesis Work	2

WINTER TERM.

Money and Banking, or International Law—Political Science 4 or 6	3
Philosophy 4	3
French—French 8	3
German—German 8	3
American Literature—English 8	3
Astronomy—Mathematics 10	4
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 12	3
Advanced Botany—Botany 6	3
Drawing and History of Painting—Drawing 17	3
Spanish—Spanish 2	3
Thesis Work	1 or 2

SPRING TERM.

American Literature—English 9	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Mathematics 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Philosophy 5 or 6	3
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 13	3
Advanced Botany—Botany 7	3
Drawing and History of Painting—Drawing 18	3
Spanish—Spanish 3	3
Thesis Work	1 or 2

HOURS OF STUDY.

FRESHMAN CLASS FOR

Term	Day	Section	8-9	9-10	10-11
Fall	Mon.	I			
		II			Chemistry 1
	Tues.	I	German 1	French 1	Mathematics 1
		II			Military Sci.
	Wed.	I	English 1		Chemistry 1
		II		English 1	
	Thu.	I	German 1	French 1	Mathematics 1
		II			
	Fri.	I	English 1	History 1 or 4	
		II		English 1	Chemistry 1
	Sat.	I	German 1	French 1	Mathematics 1
		II			
Winter	Mon.	I			Chemistry 2
		II			
	Tues.	I	German 2	French 2	Mathematics 3
		II			
	Wed.	I	English 2	History 2 or 5	
		II		English 2	Chemistry 2
	Thu.	I	German 2	French 2	Mathematics 3
		II			Military Sci.
	Fri.	I	English 2		
		II		English 2	Chemistry 2
	Sat.	I	German 2	French 2	Mathematics 3
		II			
Spring	Mon.	I		Physics 9	Physics 1
		II			Horticulture 1
	Tues.	I	German 3	French 3	Botany 3
		II		Drawing 3	Drawing 3
	Wed.	I	Military Sci.	Physics 9	Physics 1
		II	English 3		Horticulture 1
	Thu.	I	German 3	French 3	Botany 3
		II		Drawing 3	Drawing 3
	Fri.	I		English 3	Physics 1
		II	Military Sci.	Physics 9	
	Sat.	I	German 3	French 3	Botany 3
		II		Drawing 3	Drawing 3

ALL FOUR YEARS' COURSES.

Day	Section	11-11.50	1.30-2.30	2.30-4
Mon.	I	Mathematics 1.	Drawing 1.....	Drawing 1
	II	.....	Shop-work 1.....	Shop-work
Tues.	I	Military Science	Drawing 1.....	Drawing 1
	II	Mathematics 1	Shop-work 1.....	Shop-work 1
Wed.	I	....	Mathematics 1.....	....
	II	History 1 or 4.....	.....	Mathematics 1
Thurs.	I	.....	Shop-work 1 or..	History 1 or 4
	II	Mathematics 1.....	Drawing 1.....	Drawing 1
Fri.	I	.....	Shop-work 1.....	Shop-work 1
	II	Mathematics 1.....	Drawing 1.....	Drawing 1
Sat.	I	.....	.....	.....
	II	Mathematics 1.....	.....	....
Mon.	I	Mathematics 3.....	Drawing 2.....	Drawing 2
	II	.....	Shop-work 2..	Shop-work 2
Tues.	I	....	Drawing 2.....	Drawing 2
	II	Mathematics 3.....	Shop-work 2.....	Shop-work 2
Wed.	I	.....	Drawing 2 or.....	Shop-work 2
	II	Mathematics 3.....	Shop-work 2 or..	Drawing 2
Thurs.	I	Military Science 2...	Shop-work 2 or..	History 2 or 5
	II	Mathematics 3.....	Drawing 2.....	Drawing 2
Fri.	I	.....	Shop-work 2.....	Shop-work 2
	II	History 2 or 5.....	Drawing 2.....	Drawing 2
Sat.	I	.....	....	.....
	II	Mathematics 3.....	.....	.....
Mon.	I	History 3 or 6.....	Mathematics 4.....	Mathematics 4
	II	.....	.....	.....
Tues.	I	Botany 3.....	Mathematics 4.....	Mathematics 4
	II	Drawing 3.....	.....	.....
Wed.	I	Chemistry 3.....	Mathematics 4.....	Mathematics 4
	II	.....	.....	... ...
Thurs.	I	Botany 3.....	Shop-work 3.....	Shop-work 3
	II	Drawing 3.....	History 3 or 6.....	History 3 or 6
Fri.	I	Chemistry 3.....	Shop-work 3.....	Shop-work 3
	II	.....	History 3 or 6.....	History 3 or 6
Sat.	I	Botany 3.....	.....	.....
	II	Drawing 3..... ...	.....	.....

AGRICULTURE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Zoölogy 1	Zoölogy 1	Physics 10, 11, & 12	.....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 7	Botany 4	Botany 4	German 4	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 7	Physics 10, 11, & 12	Military Science	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	.....	German 4	Agriculture 7	Agriculture 7
	Friday	Botany 4	Botany 4	Horticulture 2	Horticulture 2	Zoölogy 1	Zoölogy 1
	Saturday	.....	Physics 10, 11, & 12	.....	German 4	.....	.....
Winter.	Monday	Zoölogy 2	Zoölogy 2	Physics 13	....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 8	.....	Military Science	German 5	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 8	Horticulture 3	Physics 13	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 2	Zoölogy 2	Horticulture 3	German 5	Agriculture 8	Agriculture 8
	Friday	.....	Horticulture 3	Horticulture 3	Horticulture 3	Zoölogy 2	Zoölogy 2
	Saturday	.....	Physics 13	.....	German 5	.....	.....
Spring..	Monday	Military Science	Horticulture 2	Horticulture 2	.....	Zoölogy 3	Zoölogy 3
	Tuesday	Agriculture 9	Political Science 1	.....	German 6	Horticulture 2	Horticulture 2
	Wednesday	Agriculture 9	Political Science 1	.....	.....	Zoölogy 3	Zoölogy 3
	Thursday	.....	Political Science 1	Zoölogy 3	German 6	Agriculture 9	Agriculture 9
	Friday	.....	Political Science 1	.....	.....	Zoölogy 3	Zoölogy 3
	Saturday	.....	Political Science 1	.....	German 6	.....	.....

AGRICULTURE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Dairying 1	Dairying 1	Geology 2	Horticulture 4	Agriculture 2	Agriculture 2
	Tuesday	Dairying 1	Dairying 1	Dairying 1	Agriculture 2	Horticulture 4	Horticulture 4
	Wednesday	Chemistry 6	Dairying 1	Geology 2	Agriculture 2	Horticulture 4	Horticulture 4
	Thursday	Dairying 1	Dairying 1	Dairying 1	Dairying 1	....	Chemistry 6
	Friday	....	.....	Geology 2	Dairying 1	.....	Chemistry 6
	Saturday	Military Science	Geology 2	Geology 2	Geology 2	....	.....
Winter.	Monday	English 7	.....	....	Agriculture 11	Agriculture 3	Agriculture 3
	Tuesday	English 4	Agriculture 10	.....	Forestry 1	Agriculture 11	Chemistry 7
	Wednesday	.....	.....	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
	Thursday	English 4	Agriculture 10	.....	Forestry 1	....	Chemistry 7
	Friday	.....	....	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
	Saturday	Military Science	.....	.....	Geology 1	.....	.....
Spring..	Monday	.....	Geology 1	Geology 1	Agriculture 4	Agriculture 13	.....
	Tuesday	Horticulture 5	Horticulture 5	English 5	Agriculture 4	Agriculture 13	.....
	Wednesday	.....	Geology 1	Geology 1	English 7	Agriculture 13	.....
	Thursday	Agriculture 12	Horticulture 5	English 5	.....	Agriculture 4	Agriculture 4
	Friday	Agriculture 12	Geology 1	Geology 1	.....	Agriculture 13	Agriculture 13
	Saturday	Agriculture 12	Horticulture 5	Horticulture 5	Horticulture 5	.....	.....

AGRICULTURE.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday					*Agriculture 14	Agriculture 15
	Tuesday		Political Science 2 & 3	History 7		*Agriculture 14	Agriculture 15
	Wednesday		Political Science 2 & 3	*Forestry 2		*Agriculture 14	Agriculture 14
	Thursday		Political Science 2 & 3	History 7		*Forestry 2	*Forestry 2
	Friday	*Forestry 2		*Agriculture 14	Political Science 2 & 3	History 7	
	Saturday		Political Science 2 & 3	History 7			
Winter.	Monday			History 8			
	Tuesday		Horticulture 6	Political Science 6			*Agriculture 6
	Wednesday		*Agriculture 5	History 8			*Agriculture 6
	Thursday		Horticulture 6	Political Science 6			
	Friday		*Agriculture 5	History 8		Horticulture 6	Horticulture 6
	Saturday		*Agriculture 5	Political Science 6			
Spring..	Monday					*Horticulture 7	*Horticulture 7
	Tuesday	*Forestry 3	Agriculture 17	Meteorology 1		Agriculture 16	Agriculture 16
	Wednesday	*Horticulture 8			Agriculture 16	*Horticulture 7	*Horticulture 7
	Thursday	*Forestry 3	Agriculture 17	Meteorology 1			
	Friday	*Horticulture 8		*Horticulture 7	Agriculture 16	*Forestry 3	*Forestry 3
	Saturday		Agriculture 17	Meteorology 1			

*Elective.

ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall....	Monday	.....	Drawing 4	Drawing 4	Drawing 4	Chemistry 5	Chemistry 5
	Tuesday	Mathematics 5	Military Science	Physics 2 and 3	German 4	I Shop-work 4	I Shop-work 4
	Wednesday	Mathematics 5	Drawing 4	Drawing 4	Drawing 4	Chemistry 5	Chemistry 5
	Thursday	Mathematics 5	Mechanical Eng. 1	Physics 2 and 3	German 4	II Shop-work 4	Shop-work 4
	Friday	Mathematics 5	I Shop-work 4	I Shop-work 4	I Shop-work 4	II Shop-work 4	Shop-work 4
	Saturday	Mathematics 5	Mechanical Eng. 1	Physics 2 and 3	German 4	.....	.....
Winter.	Monday	.....	Drawing 5	Drawing 5	Drawing 5	Chemistry 5	Chemistry 5
	Tuesday	Mathematics 6	Mechanical Eng. 2	Physics 4 and 5	German 5	I Shop-work 5	I Shop-work 5
	Wednesday	Mathematics 6	Drawing 5	Drawing 5	Drawing 5	Chemistry 5	Chemistry
	Thursday	Mathematics 6	Mechanical Eng. 2	Physics 4 and 5	German 5	II Shop-work 5	II Shop-work 5
	Friday	Mathematics 6	I Shop-work 5	I Shop-work 5	I Shop-work 5	II Shop-work 5	II Shop-work 5
	Saturday	Mathematics 6	Military Science	Physics 4 and 5	German 5	.....	.....
Spring..	Monday	.....	.....	....	Mechanical Eng. 3	Drawing 6	Drawing 6
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Drawing 6	Drawing 6
	Wednesday	Mathematics 7	Mechanical Eng. 3	.. ..	.....	Drawing 6	Drawing 6
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Drawing 6	Drawing 6
	Friday	Mathematics 7	....	.....	.....	Drawing 6	Drawing 6
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	....	Electr. Engin. 1	Mech. Engin. 7	Electr. Engin. 4	Physics 6	Physics 6
	Tuesday	Drawing 7	Drawing 7	Drawing 7	Mech. Engin. 8	Physics 6	Physics 6
	Wednesday	Electr. Engin. 1	Mech. Engin. 7	.....	Electr. Engin. 4	Physics 6	Physics 6
	Thursday	Drawing 7	Drawing 7	Drawing 7	Mech. Engin. 8	Shop-work 6	Shop-work 6
	Friday	Electr. Engin. 1	Mech. Engin. 4	Mech. Engin. 8	Electr. Engin. 4	Shop-work 6	Shop-work 6
	Saturday	Military Science	Mech. Engin. 4	.....	Mech. Engin. 8	.....	.....
Winter.....	Monday	English 7	Electr. Engin. 2	Mech. Engin. 5	Electr. Engin. 5	Physics 7	Physics 7
	Tuesday	Drawing 8	Drawing 8	Drawing 8	Mech. Engin. 9	Physics 7	Physics 7
	Wednesday	Electr. Engin. 2	Mech. Engin. 5	....	Electr. Engin. 5	Physics 7	Physics 7
	Thursday	Electr. Engin. 2	Mech. Engin. 5	.....	Mech. Engin. 9	Shop-work 7	Shop-work 7
	Friday	Drawing 8	Drawing 8	Drawing 8	Electr. Engin. 5	Shop-work 7	Shop-work 7
	Saturday	Military Science	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
Spring.....	Monday	Drawing 9	Drawing 9	Drawing 9	Electr. Engin. 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 3	Physics 8	Physics 8
	Wednesday	Drawing 9	Drawing 9	Drawing 9	Electr. Lngin. 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 3	Shop-work 8	Shop-work 8
	Friday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 6	Shop-work 8	Shop-work 8
	Saturday	Mech. Engin. 5	Electr. Engin. 3	Mech. Engin. 10	Military Science	....	.....

MECHANICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall	Monday	Electrical Eng. 20 and 21	Mechanical Eng. 12	Mechanical Eng. 11	.....	Shop-work 9	Shop-work 9
	Tuesday	Mechanical Eng. 11	.....	English 6	.....	.....	.....
	Wednesday	Electrical Eng. 20 and 21	Mechanical Eng. 12	Mechanical Eng. 11	.....	Drawing 10	Drawing 10
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	English 6	Electrical Eng. 20 and 21	Mech. Eng. 14	Mech. Eng. 14
	Friday	Drawing 10	Drawing 10	Drawing 10	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	Drawing 10	Drawing 10	Drawing 10	.....	.....	.....
Winter.	Monday	.....	.....	Mechanical Eng. 20	Mechanical Eng. 17	Thesis	Thesis
	Tuesday	Mechanical Eng. 19	.....	.....	Mechanical Eng. 13	Thesis	Thesis
	Wednesday	.....	Mechanical Eng. 19	Mechanical Eng. 20	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	....	... .	Mechanical Eng. 19	Mechanical Eng. 13	Mech. Eng. 15	Mech. Eng. 15
	Friday	Shop-work 10	Shop-work 10	Shop-work 10	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	.....	Mechanical Eng. 20	Mechanical Eng. 9	Mechanical Eng. 13	.....	....
Spring..	Monday	.....	Mechanical Eng. 18	Mechanical Eng. 21	Mechanical Eng. 18	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	....	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
	Thursday	.....	Political Science 1	....	Mechanical Eng. 21	Thesis	Thesis
	Friday	Mechanical Eng. 21	Political Science 1	.....	Mechanical Eng. 18	Thesis	Thesis
	Saturday	... .	Political Science 1	.....	... .	.....	.....

ELECTRICAL ENGINEERING.—SENIOR CLASS.

TERM	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall	Monday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	French 4	Electr. Eng. 15	Electr. Eng. 15
	Tuesday	Mechanical Eng. 11	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
	Wednesday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	French 4	Electr. Eng. 15	Electr. Eng. 15
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	.....	Electrical Eng. 10, 11 and 12	Mech. Eng. 14	Mech. Eng. 14
	Friday	....	Electrical Eng. 7	....	French 4	Mech. Eng. 14	Mech. Eng. 14
	Saturday	.....	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
Winter.	Monday	.....	.....	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Electr. Eng. 16	Electr. Eng. 16
	Tuesday	Electrical Eng. 8	.....	.....	Electrical Eng. 14	Electr. Eng. 16	Electr. Eng. 16
	Wednesday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Mech. Eng. 15	Mech. Eng. 15
	Thursday	.....	Electrical Eng. 8	....	Electrical Eng. 14	Mech. Eng. 15	Mech. Eng. 15
	Friday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Mech. Eng. 15	Mech. Eng. 15
	Saturday	Electrical Eng. 13	.....	.....	Electrical Eng. 14	....	.....
Spring..	Monday	Electrical Eng. 13	Electrical Eng. 9	.....	Mechanical Eng. 18 or French 6	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	Political Science 1	.....	.....	.....	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	Political Science 1	Thesis	Thesis	Mechanical Eng. 18 or French 6	Electr. Eng. 17	Electr. Eng. 17
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Electr. Eng. 17	Electr. Eng. 17
	Friday	Political Science 1	.....	....	French 6	Thesis	Thesis
	Saturday	Political Science 1	Mechanical Eng. 18	.....	Electrical Eng. 9	.....	.....

TECHNICAL CHEMISTRY.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Drawing 4	Drawing 4	Drawing 4	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 5	.....	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Mathematics 5	Drawing 4	Drawing 4	Drawing 4	Chemistry 4	Chemistry 4
	Thursday	Mathematics 5	Military Science 6	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Friday	Mathematics 5	....	.....	.....	Chemistry 4	Chemistry 4
	Saturday	Mathematics 5	....	Physics 2 & 3	German 4	....	.....
Winter..	Monday	....	.....	.....	.....	Chemistry 10	Chemistry 10
	Tuesday	Mathematics 6	....	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Wednesday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Thursday	Mathematics 6	Military Science 6	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Friday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Saturday	Mathematics 6	.....	Physics 4 & 5	German 5	.....	.....
Spring ..	Monday	.....	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Tuesday	Mathematics 7	... .	Physics 5	German 6	Chemistry 11	Chemistry 11
	Wednesday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Thursday	Mathematics 7	Military Science 0	Physics 5	German 6	Chemistry 8	Chemistry 8
	Friday	Mathematics 7	Geology 1	Geology 1	....	Chemistry 8	Chemistry 8
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

TECHNICAL CHEMISTRY.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Military Science	Military Science	Mech. Engin. 7	French 4	Chemistry 9	Chemistry 9
	Tuesday	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Wednesday	Chemistry 6	Mech. Engin. 7	.....	French 4	Chemistry 9	Chemistry 9
	Thursday	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Friday	Chemistry 6	Mech. Engin. 4	.....	French 4	Chemistry 11	Chemistry 11
	Saturday	.....	Mech. Engin. 4	.....	.....	.....	.....
Winter.....	Monday	English 7	.....	Mech. Engin. 5	French 5	Physics 7	Physics 7
	Tuesday	Chemistry 11	Chemistry 11	Chemistry 13	.....	Physics 7	Physics 7
	Wednesday	.....	Mech. Engin. 5	.....	French 5	Physics 7	Physics 7
	Thursday	.....	Mech. Engin. 5	Chemistry 13	.....	Chemistry 11	Chemistry 11
	Friday	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11	Chemistry 11
	Saturday	Military Science	Mech. Engin. 5	.....	.....	.....	.....
Spring.....	Monday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics	Physics 8
	Tuesday	Mech. Engin. 6	.....	English 5	Chemistry 14	Physics 8	Physics 8
	Wednesday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 6	.....	English 5	Chemistry 14	Chemistry 11	Chemistry 11
	Friday	Mech. Engin. 6	.....	.....	French 6	Chemistry 11	Chemistry 11
	Saturday	Mech. Engin. 6	.....	.....	Military Sci.	.....	.....

TECHNICAL CHEMISTRY.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11.00-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Chemistry 11 or 21	Chemistry 11 or 21	.....	Elec. Engin. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Tuesday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mech. Engin. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Wednesday	Shop-work 4	Shop-work 4	Shop-work 4	Shop-work 4	Elec. Engin. 22	Elec. Engin. 22
	Thursday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mech. Engin. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Friday	.....	Chemistry 11 or 21	Chemistry 11 or 21	Elec. Engin. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Saturday	.....	Chemistry 12.	....	Mech. Engin. 8	.....	....,.....
Winter..	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday.	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Saturday	.....	.....	Chemistry 12	Chemistry 12	.....	... .
Spring...	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	.....	Political Science 1	.....	.....	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	.....	Political Science 1	Chemistry 19	Chemistry 19	Chemistry 19	Chemistry 19
	Saturday	.....	Political Science 1	.....	Chemistry 12	....	.....

GENERAL COURSE—SOPHOMORE CLASS.

TERM	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First	Monday	Zoölogy 1	Zoölogy 1	Physics 10, 11 and 12	....	Chemistry 4 Spanish 1	Chemistry 4
	Tuesday	Mathematics 5	.....	Physics 2 and 3	German 4	Chemistry 4 Spanish 1	Chemistry 4
	Wednesday	Mathematics 5	Physics 10, 11 and 12	Military Science	History 1 or 4	Chemistry 4 Spanish 1	Chemistry 4
	Thursday	Mathematics 5	Zoölogy 1	Physics 2 and 3	German 4	History 1 or 4	History 1 or 4
	Friday	Zoölogy 1 Mathematics 5	History 1 or 4	History 1 or 4	History 1 or 4	Zoölogy 1	Zoölogy 1
	Saturday	Mathematics 5	Physics 10, 11 and 12	Physics 2 and 3	German 4	.....	.....
Second..	Monday	Zoölogy 2	Zoölogy 2	Physics 13	Philosophy 1	Chemistry 4 Spanish 2	Chemistry 4
	Tuesday	Mathematics 6	Military Science	Physics 4 & 5	German 5	Chemistry 4 Spanish 2	Chemistry 4
	Wednesday	Mathematics 6 Drawing 11	History 2 or 5 Drawing 11	Physics 13	Philosophy 1	Chemistry 4 Spanish 2	Chemistry 4
	Thursday	Mathematics 6	Zoölogy 2	Physics 4 & 5	German 5	History 2 or 5	History 2 or 5
	Friday	Mathematics 6 Drawing 11	Drawing 11	.....	History 2 or 5	Zoölogy 2	Zoölogy 2
	Saturday	Mathematics 6	Physics 13	Physics 4 & 5	German 5	.....	.....
Third....	Monday	Military Science	Drawing 12	Drawing 12	History 3 or 6	Zoölogy 3 Chemistry 10 Spanish 3	Chemistry 10 Zoölogy 3
	Tuesday	Mathematics 7	Political Science 1	Physics 5	German 6	Chemistry 10 Spanish 3	Chemistry 10 Zoölogy 3
	Wednesday	Mathematics 7	Political Science 1	Drawing 12 Philosophy 2	Drawing 12	Chemistry 10 Spanish 3	Zoölogy 3 Chemistry 10
	Thursday	Mathematics 7	Political Science 1	Zoölogy 3 Physics 5	German 6	Chemistry 10 History 3 or 6	History 3 or 6
	Friday	Mathematics 7	Political Science 1	Philosophy 2 Drawing 12	Drawing 12	History 3 or 6 Zoölogy 3	History 3 or 6 Zoölogy 3
	Saturday	Mathematics 7	Political Science 1	Physics 5	German 6	.....	.....

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
First. ..	Monday	.....	....	Geology 2	French 4	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Tuesday	Drawing 13 Chemistry 6	Drawing 13	History 7	Philosophy 3	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Wednesday	Chemistry 6	Mathematics 8	Geology 2	French 4	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Thursday	Military Science 2	.....	History 7	Philosophy	Drawing 13	Drawing 13
	Friday	Drawing 13 Chemistry 6	Drawing 13 Mathematics 8	Geology 2 History 7	French 4 Philosophy 3	History 7	History 7
	Saturday	.....	Geology 2	Geology 2	Geology 2	.....	.....
Second..	Monday	English 7	.....	History 8	French 5	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Tuesday	English 4	Philosophy 4	Political Science 4 or 6	.....	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Wednesday	Chemistry 7	Mathematics 9	History 8	French 5	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Thursday	English 4	Philosophy 4	Political Science 4 or 6	... .	Drawing 14	Drawing 14
	Friday	Chemistry 7	Mathematics 9	History 8	French 5	Drawing 14	Drawing 14
	Saturday	Military Science	Philosophy 4	Political Science 4 or 6	English 4	.....	.....
Third....	Monday	.....	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Tuesday	Philosophy 5 or 6	Military Science	English 5	Political Science 5 or 7	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Wednesday	History 9	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Thursday	Philosophy 5 or 6	.....	English 5	Political Science 5 or 7	Drawing 15	Drawing 15
	Friday	History 9	Geology 1	Geology 1	French 6	Drawing 15	Drawing 15
	Saturday	Philosophy 5 or 6	Drawing 15	Drawing 15	Political Science 5 or 7	....	....

GENERAL COURSE.—

Term	Day	8–9	9–10	10–11
Fall	Monday			French 7
	Tuesday		Political Sci. 2 & 3	English 6
	Wednesday	German 7	Political Sci. 2 & 3	French 7
	Thursday		Political Sci. 2 & 3	English 6
	Friday	German 7		French 7
	Saturday		Political Sci. 2 & 3	
Winter..	Monday		Mathematics 6	French 8
	Tuesday		Philosophy 4	Political Sci 4 or 6
	Wednesday	German 8	Mathematics 10	French 8
	Thursday		Philosophy 4	Political Sci. 4 or 6
	Friday	German 8	Mathematics 10	French 8
	Saturday		Philosophy 4	Political Sci. 4 or 6
Spring..	Monday		Mathematics 11	French 9
	Tuesday	Philosophy 5 or 6		Meteorology 1
	Wednesday	German 9	Mathematics 11	French 9
	Thursday	Philosophy 5 or 6		Meteorology 1
	Friday	German 9	Mathematics 11	French 9
	Saturday	Philosophy 5 or 6		Meteorology 1

SENIOR CLASS.

Day	11–11.50	1.30–2.30	2.30–4
Monday		Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Tuesday	Philosophy 3	Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Wednesday		Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Thursday	Philosophy 3	Zoölogy 11	Zoölogy 4
Friday	Political Science 2 or 3		
Saturday	Philosophy 3		
Monday		Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Tuesday	English 8	Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Wednesday		Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Thursday	English 8		
Friday			Mathematics 6
Saturday	English 8		
Monday		Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
		Spanish 3	
Tuesday	Political Science 5 or 7	English 9	English 9
		Spanish 3	
Wednesday	English 9	Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
		Spanish 3	
Thursday	Political Science 5 or 7		
Friday	English 9	Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
Saturday	Political Science 5 or 7		

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four years' collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany, and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry, or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses, or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography, and history of the United States."

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Mathematics 12	3
English 11 and 1	5
Botany 1	3

	Exercises per week.
Horticulture 1	3
Agriculture 1	3
Agriculture 18	3
Military Science	1
WINTER TERM.	
Mathematics 13	3
English 2	2
Shop Work 12	3
Chemistry	3
Botany 2	2
Horticulture 3	3
Military Science	1
SPRING TERM.	
Shop Work 13	3
English 3	1
Physics 14	3
Botany 3	3
Dairying 1	5
Military Science	1

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR COURSE.

FALL TERM.	Exercises per week.
Zoölogy 1	3
Botany 4	2
Horticulture 2	1
Horticulture 4	3
Physics 15	3
Agriculture 7	3
Agriculture 2	3
Military Science	1
WINTER TERM.	
Zoölogy 2	3
Agriculture 3	3
Agriculture 5	3
Agriculture 8	3
Forestry 1	3
Agriculture 11	4
Military Science	1

SPRING TERM.

	Exercises per week.
Zoölogy 3	4
Horticulture 2	2
Horticulture 5	3
Agriculture 12	3
Agriculture 4	3
Agriculture 13	4
Military Science	1

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30–2.30	2.30-4
Monday		Mathematics 12		Agriculture 18	Horticulture 1	Horticulture 1
Tuesday	English 11	Mathematics 12	Military Science	Agriculture 18	Botany 1	Botany 1
Wednesday	English 1	Agriculture 1		Horticulture 1	Botany 1	Botany 1
Thursday	English 11		Agriculture 1	Horticulture 1	Botany 1	Botany 1
Friday	English 1	Mathematics 12	Agriculture 1	Agriculture 1	Agriculture 18	Agriculture 18
Saturday	English 11					

WINTER TERM.

Monday		Horticulture 3	Horticulture 3	Horticulture 3	Botany 2	Botany 2
Tuesday		Chemistry		Mathematics 13	Botany 2	Botany 2
Wednesday	English 2	Horticulture 3		Mathematics 13	Shop-work 12	Shop-work 12
Thursday		Chemistry	Military Science	Mathematics 13	Shop-work 12	Shop-work 12
Friday	English 2	Horticulture 3	Horticulture 3	Horticulture 3	Shop-work 12	Shop-work 12
Saturday		Chemistry				

SPRING TERM.

Monday	Dairy 1	Dairy 1	Dairy 1	Physics 14	Shop-work 13	Shop-work 13
Tuesday	Dairy 1	Dairy 1	Botany 3	Botany 3		
Wednesday	Dairy 1	Dairy 1	Dairy 1	Physics 14	Shop-work 13	Shop-work 13
Thursday	Dairy 1	Dairy 1	Botany 3	Botany 3		
Friday	Military Science	English 3		Physics 14	Shop-work 13	Shop-work 13
Saturday	Dairy 1	Dairy 1	Botany 3	Botany 3		

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR.—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Zoölogy 1	Zoölogy 1	Physics 15	Horticulture 4	Agriculture 2	Agriculture 2
Tuesday	Agriculture 7	Botany 4	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday	Agriculture 7	Physics 15	Military Science	Agriculture 2	Horticulture 4	Horticulture 4
Thursday	Zoölogy 1	Zoölogy 1		Physics 15	Agriculture 7	Agriculture 7
Friday	Botany 4	Botany 4	Horticulture 2	Horticulture 2	Zoölogy 1	Zoölogy 1
Saturday						

WINTER TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Zoölogy 2	Zoölogy 2		Agriculture 11	Agriculture 3	Agriculture 3
Tuesday	Agriculture 8		Military Science	Forestry 1	Agriculture 11	
Wednesday	Agriculture 8	Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday	Zoölogy 2	Zoölogy 2		Forestry 1	Agriculture 8	Agriculture 8
Friday		Agriculture 5	Agriculture 3	Agriculture 11	Zoölogy 2	Zoölogy 2
Saturday		Agriculture 5				

SPRING TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Military Science	Horticulture 2	Horticulture 2	Agriculture 4	Zoölogy 3	Zoölogy 3
Tuesday	Horticulture 5	Horticulture 5	Agriculture 13	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday			Agriculture 13		Zoölogy 3	Zoölogy 3
Thursday	Agriculture 12	Horticulture 5	Zoölogy 3	Agriculture 13	Agriculture 4	Agriculture 4
Friday	Agriculture 12		Agriculture 13	Agriculture 13	Zoölogy 3	Zoölogy 3
Saturday	Agriculture 12	Horticulture 5	Horticulture 5	Horticulture 5		

TEN WEEKS' COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 10, and continuing until Friday, March 17, 1905.

No entrance examinations are required, but students taking the course must possess a good common school education. The course is especially desirable for students of mature years.

The courses of study offered are dairying, stock-feeding, principles of breeding, breeds of sheep and swine, woodworking, soil physics, greenhouse management, forestry, botany, and entomology, together with practical work in the creamery, work-shop, and greenhouses.

A fee of five dollars will be charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, ten weeks, at $4	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office, Thompson Hall, on Tuesday, January 10, 1905.

TEN WEEKS' COURSE IN DAIRYING OR DAIRY SCHOOL.

The tenth annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 10, and continue ten weeks, closing on March 22. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. In other words, it offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room, and board for ten weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the twelve men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

For further information address:

New Hampshire College of Agriculture and the Mechanic Arts, Durham, N. H.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one half stories with basement. It is divided into rooms for testing, separating, and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students will be taught to use the United States, DeLaval, Empire, Sharples, and other cream separators. The latest apparatus for pasteurizing milk and cream, and the more modern churns and butter-workers will be available for students' use. An ice-cream plant has recenty been installed. The most approved appliances for milk testing form a part of the regular equipment. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCTS.

Instructor Ivan C. Weld.

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

Instruction in ice-cream making will include the selection of cream, its preparation for freezing, the selection and preparation of flavors, the packing for shipment, the making of ice-cream bricks, and a consideration of the various influences affecting quality, yield, etc.

DAIRY MECHANICS.

Instructor Ivan C. Weld.

Lectures will be given on the construction, operation, and care of the various appliances used in the dairy or creamery. Each student will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed, and outfit, and to perform other duties required of creamery and dairy managers.

MILK TESTING.

Instructor Ivan C. Weld.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the value of the test in the successful management of the dairy herd has created a demand for practical training. The course will include lectures and recitations on the history and principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk, and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of ten lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat, and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Instructor Ivan C. Weld.

Lectures, recitations, and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

CREAMERY AND DAIRY MANAGEMENT.

Instructor Ivan C. Weld.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings and creameries will also be required, with estimates for building and equipment.

BOILERS AND ENGINES.

Instructor E. H. Hancock.

Lectures will be given on the construction, operation, and care of boilers, motors, steam, and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice, and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability, and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding

as exhibited through the laws of heredity, variation, and selection; methods of breeding, including a discussion of in-breeding, cross-breeding, and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming, and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive, and milk-producing organs, the common diseases, the causes, and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of fifteen thousand dollars.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1904.

On Commencement Day, June 4, 1904, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Leander Ashton, Pittsfield.
Percy Anderson Campbell, Litchfield.
Carrol Winfred Farr, North Weare.
Joseph Ezra Goodrich, New Durham.
Arthur Ronello Merrill, North Bridgton, Me.

IN MECHANICAL ENGINEERING.

George Herbert Hill, La Crosse, Wisconsin.
Thomas Jefferson Laton, Nashua.
Samuel Ambrose Richardson, Charlestown.

IN ELECTRICAL ENGINEERING.

Walter Allen Barker, Pittsfield.
Raymond Louis Lunt, Dover.

UNCLASSIFIED.

Edgar Charles Bickford, Durham.

HONORARY DEGREES.

The degree of M. Sc. was conferred upon—

Hon. George A. Wason, trustee 1883-1904; President of the Board of Trustees, 1897-1904.

And upon the following ex-trustees of the college:

Frederick P. Comings, B. S., Tacoma, Washington, alumni trustee, 1893-1903.

Albert DeMeritt, Esq., Durham, N. H., trustee 1892-1895.

Certificates.

Certificates from the Two Years' Course in Agriculture were awarded to—

Erland Graves Batchelder, Wilton.
Wesley Pillsbury Flint, Newburyport, Mass.
Henry Marston Shurbert, Northwood Ridge.

PRIZE RECORD FOR 1904.

SMYTH PRIZES.

Given by Mrs. Marian C. Smyth.

Speaking:—

1st, $20. Harry U. Russell, '05. 2d, $15, Castine C. Swanson, '05. 3d, $10, Warren C. Hayes, '05.

Reading:—

1st, $15, Neil S. Franklin, '06. 2d, $10, Wm. S. Gooch, '07.

BAILEY PRIZE — $10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Raymond Louis Lunt.

ERSKINE MASON MEMORIAL PRIZE.

Léander Ashton.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Thomas J. Laton.

WINNER OF INDIVIDUAL PRIZE DRILL.

W. E. Murchie, '07.

HONORABLE MENTION.

Andrew Broggini, '07.

PRIZE SWORD—EXCELLENCE IN DRILL.

J. W. Moreton, '05.

Valentine Smith Scholarships are held by

William O. Robinson, '05.
John D. Clark, '06.
J. Glenn Powers, '07.
W. W. Kirkpatrick, '08.

ROSTER OF BATTALION.

For 1904 - 1905.

Major and Acting Commandant Elmer S. Savage.

Company A.

Capt. C. O. Dodge.
1st Lieut. F. H. Heath.
2d Lieut. W. C. Campbell.

Sergeants.

1st Sergt. N. S. Franklin.
Sergt. E. J. Roberts.
Sergt. L. K. Barnes.
Sergt. C. S. Batchelder.
Sergt. R. E. Gowen.

Corporals.

A. G. Weeks.
F. W. Randall.
A. Broggini.
B. C. Abbott.
L. D. Batchelor.

Musician.

P. R. Berry.

Company B.

Capt. J. W. Moreton.
1st Lieut. H. U. Russell.
2d Lieut. M. A. Pike.

Sergeants.

1st Sergt. E. L. Converse.
Sergt. A. M. Johnson.
Sergt. W. C. Small.
Sergt. R. V. Swain.
Sergt. W. E. Murchie.

Corporals.

J. G. Powers.
F. D. Lane.
A. L. Smith.
J. H. Priest.
C. A. Dodge.

Musician.

M. G. Buss.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

SENIORS.

Name.	Residence.	Room.
Chesley, John Henry *e e*	*Rockingham.*	Kappa Sigma House.
Dodge, Cleon Orestes *c*	*Sunapee.*	Mrs. Sanders'.
Hayden, Silas Bryden *u*	*So. Natick, Mass.*	Kappa Sigma House.
Hayes, Harry Linwood *ee*	*Exeter.*	Exeter.
Hayes, Warren Chauncey *u*	*Durham.*	Mr. Hayes'.
Heath, Fred Harvey *c*	*Warner.*	Prof. Scott's.
Knight, Harold Nims *a*	*Marlborough.*	Mr. Schoonmaker's.
Mudgett, Orlo Dudley *e e*	*Gilmanton.*	Zeta House.
Pettee, Horace James *e*	*Durham.*	Prof. Pettee's.
Pike, Mahlon Arthur *u*	*Dover.*	Miss Berry's.
Putney, Fred Silver *a*	*Hopkinton.*	Prof. Scott's.
Randall, John Leslie *a*	*Lee.*	Lee.
Robinson, William Orrin *c*	*Marlborough.*	Pettee's Block.
Russell, Harry Union *g*	*West Derry.*	Miss Berry's.
Savage, Elmer Seth *a*	*Lancaster.*	Kappa Sigma House.
Swanson, Castine Caroline *g*	*Cambridge, Mass.*	Prof. Sanderson's.

JUNIORS.

Adams, Samuel Taylor *e e*	*Pittsfield.*	Zeta House.
Barnes, Stuart Kendrick *c*	*Walpole.*	Pettee's Block.
Batchelder, Charles S. *a*	*So. Hampton.*	Nesmith Hall.
Campbell, Willis Cassius *c*	*West Windham.*	Kappa Sigma House.
Clark, John Dustin *g*	*Nashua.*	Kappa Sigma House.
Converse, Ernest Luther *g*	*Amherst.*	Mr. Sawyer's.
Franklin, Neil Starr *e e*	*Bernardston, Mass.*	Kappa Sigma House.
Gooch, William Safford *e e*	*Exeter.*	Exeter.
Gowen, Ralph Edward *m e*	*Stratham.*	The Mystic.
Moreton, Joseph Wesley *e e*	*Medford, Mass.*	Zeta House.
Roberts, Edwin Jay *c*	*Laconia.*	Dr. Grant's.

Name.	Residence.	Room.
Small, William Clifford, Jr., *m e*	*Nashua.*	Kappa Sigma House.
Swain, Roy Vance *m e*	*Barrington.*	Mrs. Sanders'.
Tinkham, Frank Alvin *a*	*Grafton.*	Prof. Parsons'.

SOPHOMORES.

Abbott, Burt Carleton *a*	*Tilton.*	Thompson Hall.
Batchelor, Leon Dexter *a*	*West Upton, Mass.*	Kappa Sigma House.
Berry, Philip Ray *e*	*Alton.*	Miss Berry's.
Broggini, Andrew *e*	*Concord.*	Mr. Schoonmaker's.
Campbell, Samuel Francis *a*	*West Windham.*	Kappa Sigma House.
Clement, Clarence Elbert *a*	*Derry.*	Mr. Meserve's.
Dickey, Harold Hurst *g*	*Manchester.*	Kappa Sigma House.
Dodge, Carl Austin *c*	*New Boston.*	Kappa Sigma House.
Fuller, Carl Tilson *c*	*Nashua.*	Zeta House.
Handy, Waylon Lester *a*	*Swanzey.*	Zeta House.
Hardy, Edwin Davis *m e*	*Nashua.*	Zeta House.
Ingham, Harry Edward *e*	*Nashua.*	Kappa Sigma House.
Jenness, Cyrus Fremont *a*	*Gonic.*	Kappa Sigma House.
Johnson, Allen Montague *e*	*Nashua.*	Zeta House.
Lane, Frank Davis *e*	*Manchester.*	Kappa Sigma House.
Littlefield, Ralph Albion *a*	*Portsmouth.*	Mrs. H. Mathes'.
Mooar, Mary Louisa *g*	*Manchester.*	Miss Berry's.
Murchie, William Ewart *e*	*Concord.*	Kappa Sigma House.
Noyes, Bernard C. *a*	*Landaff.*	Thompson Hall.
Powers, John Glenn *a*	*Concord.*	Mr. Schoonmaker's.
Purrington, Wallace Fuller *c*	*So. Yarmouth, Mass.*	Zeta House.
Randall, Frank Wiggin *e*	*Portsmouth.*	Mr. Wentworth's.
Smith, Arthur Leon *e*	*Portsmouth.*	Pettee's Block.
Snow, Ezra David *e*	*Whitefield.*	Pettee's Block.
Stockwell, Franklin Emmons *a*	*Lancaster.*	Zeta House.
Townsend, Ellice Storrs *g*	*Lebanon.*	Miss Berry's.
Tuttle, Charles Leo	*Exeter.*	Exeter.
Watson, Lucia Soule *g*	*Durham.*	Mr. D. W. Watson's.
Woodward, Arthur Jason *e*	*Lancaster.*	Pettee's Block.

FRESHMEN.

Allen, Lloyd Jay	*Tilton.*	Zeta House.
Atwell, Robert King	*Portsmouth.*	The Mystic.
Bailey, Emery Ward	*Suncook.*	Mr. Schoonmaker's.
Barton, Arthur Hosea	*Newport.*	The Mystic.
Batchelder, Arthur Milliken	*Suncook.*	Zeta House.

Name.	Residence.	Room.
Batchelder, Henry Edward	*Exeter.*	Exeter.
Beecher, Henry Ward	*New Salem, Mass.*	The Mystic.
Belleville, William Edward *a*	*Hinsdale.*	Zeta House.
Buss, Minot Giles	*Wilton.*	Mr. Schoonmaker's.
Carlisle, Lawrence Andrew	*Exeter.*	Exeter.
Cash, James Dennis	*Massabesic.*	The Mystic.
Chase, Fred Odell	*Warner.*	Pettee's Block.
Chesley, Mary Abbie	*Lee.*	Lee.
Chesley, Wilbur Lemuel	*Farmington.*	Mr. Wentworth's.
Clough, Francis	*Contoocook.*	Mr. Schoonmaker's.
Cone, Charles Francis	*Nashua.*	Zeta House.
Converse, Albert William	*Amherst.*	Mr. Sawyer's.
Croghan, John Timothy	*Concord.*	Mr. Schoonmaker's.
DeMeritt, Katharine	*Durham.*	Mr. Albert Demeritt's.
Evans, Walter Woods	*East Kingston.*	East Kingston.
Farwell, Oren Lovell	*Harrisville.*	Zeta House.
Fellows, Ernest Roslyn	*Exeter.*	Exeter.
French, Harry Fifield	*Plymouth.*	Mr. Edgerly's.
Gardner, Frederick Alberto	*Tilton.*	Zeta House.
Goodsoe, Paul Wesley	*Stratham.*	The Mystic.
Harrington, Annie Roberta	*Goffstown.*	Miss Berry's.
Hill, Stanley Fisk	*Nashua.*	Pettee's Block.
Howland, George Raymond	*Woodsville.*	Mr. Sawyer's.
Huse, Merritt Chase	*Concord.*	Mr. Schoonmaker's.
Jack, Charles Harrison	*Manchester.*	Mr. Chesley's.
Jeffers, Omer Smith	*Whitefield.*	Pettee's Block.
Kirkpatrick, William R.	*Nashua.*	Mr. Wentworth's.
Leonard, Thomas James	*Lancaster.*	Mr. Sawyer's.
Marshall, George Harnden	*Lancaster.*	Mr. Sawyer's.
Matthews, Charles Doane	*Portsmouth.*	Mr. Burnham's.
Neville, George Duncan	*New Boston.*	Mr. Schoonmaker's.
Nichols, Ernest Chase	*Hillsboro Bridge.*	
O'Connor, John Joseph	*Portsmouth.*	Pettee's Block.
O'Grady, Augustus Michael	*Nashua.*	Zeta House.
Page, John Caleb	*Dover.*	Dover.
Parker, William Brackett	*Portsmouth.*	Mr. Burnham's.
Perley, George Arthur	*Goffstown.*	Prof. Pettee's.
Pettee, Sarah Elizabeth	*Durham.*	Prof. Pettee's.
Plummer, Carl Stevens	*Manchester.*	Kappa Sigma House.
Powers, Leon Tyler	*Tilton.*	Zeta House.
Smalley, Dean Fred	*Walpole.*	Pettee's Block.
Smith, Arthur Watts	*Hudson.*	Mr. Wentworth's.
Spooner, William Alfred	*New Salem, Mass.*	Mr. George DeMeritt's.
Springfield, Eugene	*Rochester.*	Mr. Stevens'.

Name.	Residence.	Room.
Stevens, Frederick Caverly	*Suncook.*	Pettee's Block.
Tarbell, Carl Brown	*Milton.*	Mr. Chesley's.
Thompson, Roscoe Leroy	*West Swanzey.*	The Mystic.
Wadleigh, Ray Emery	*Kensington.*	Mr. Chesley's.
Waite, George Lyman	*Dunbarton.*	Zeta House.
Walker, Harold Duncan	*Kittery, Me.*	Pettee's Block.
Webster, Walter Everett	*Kingston.*	Kingston.
Weeks, Albion G.	*Rochester.*	The Mystic.
Woodbury, James Lufkin	*Francestown.*	Brook Cottage.
Woodman, Francis Ward	*Milford.*	Mr. Burnham's.

TWO YEARS' COURSE.

Second Year.

Barney, Grover Lafayette	*Grafton.*	Mr. Stevens'.
Dunn, Arthur Garfield	*Harrisville.*	Zeta House.
Edmunds, Fred Sanborn Cleveland	*Chichester.*	Mr. Wentworth's.
Frost, Henry Walter	*Dublin.*	Pettee's Block.
Gowing, Henry Newton	*Dublin.*	Pettee's Block.
Price, Amos Richardson	*Gilmanton Iron Works.*	Zeta House.

First Year.

Anderson, Edwin Hazelton	*Chester.*	Mr. Bickford's.
Bartlett, Edmund Morrill	*Salisbury, Mass.*	Mr. Burnham's.
Coburn, Frank Milton	*Manchester.*	Mr. Chesley's.
Dimond, Oliver Carter	*West Concord.*	Mr. Edgerly's.
Forristall, Ralph Wayne	*Alstead.*	Pettee's Block.
Grimes, Frank Alfred	*Francestown.*	Brook Cottage.
Hargreaves, Stanley	*Durham.*	Mrs. Berry's.
Huckins, George Edwin	*New Hampton.*	Mr. S. Jenkins'.
Knowles, Charles Walker	*Gilmanton.*	Zeta House.
Lindquest, Eno Alexander	*No. Charlestown.*	Mr. L. Bunker's.
Locke, Elmer Walker	*Deering.*	Mrs. Berry's.
Norton, Percy Francis	*North Hampton.*	The Mystic.
Sanborn, Carl Jeremiah	*Pittsfield.*	
Sawyer, Robert Stanley	*Walpole.*	Pettee's Block.
Shuttleworth, Edwin Lewis	*Methuen, Mass.*	Pettee's Block.
Smith, Chellis Vielle	*Deerfield Centre.*	Mrs. Berry's.
Thompson, Frank Allen	*Pittsfield.*	The Mystic.
Wilson, John Spangler	*Deerfield.*	Mrs. Berry's.

SPECIAL COURSE.

Name.	Residence.	Room.
Adams, Waldo Lawrence	*Townsend, Mass.*	Mrs. Sanders'.
Carpenter, Harry W.	*Amherst.*	Mr. Sawyer's.
Flint, Wesley Pillsbury	*Newburyport, Mass.*	Zeta House.
Fowler, Clarence	*Durham.*	Mr. C. Fowler's.
Priest, James Harry	*Manchester.*	Mrs. J. Thompson's.

TEN WEEKS' COURSE.

Agriculture.

Name.	Residence.
Jewett, Charles Lyman	*Middlebury, Vt.*

Dairying.

Name.	Residence.
Carter, Orson	*Hillsboro Bridge.*
Gunn, Arthur Elisha	*Keene.*
Howe, Ernest Leavitt	*East Barnard, Vt.*
Jewett, Alden Henry	*West Lynn, Mass.*
Lamothe, William G.	*Newfields.*
Murch, Ralph Herbert	*West Lebanon.*
Pike, George H.	*Hinsdale.*
Stevens, George Albert	*Lisbon.*
Taylor, Arthur Wilmer	*East Andover.*

SPECIAL SHORT COURSE.

Name.	Residence.	Study.
Meader, Dana William	*Rochester.*	Horticulture.
Rowse, George William, Jr.	*Montgomery, Vt.*	Dairying.

SUMMARY.

Seniors	16
Juniors	14
Sophomores	29
Freshmen	59
Students in Two Years' Course	24
Students in Ten Weeks' Course	10
Special Students	5
Special Short Course Students	2
Total	159

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: *(a)* Name in full. *(b)* Later degrees taken. *(c)* Residence at time of entering college. *(d)* Occupation, etc. *(e)* Present residence. *Dead. †Present address unknown. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.

Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.
Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.

2—

1873.

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School. *Campbell, Cal.*

Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company Works. *Water St., East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.
206 So. Main Street, Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Market Gardener.
Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Merchant. *Kimball, Stearns County, Minn.*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist.
287 Church Street, Keene.

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass.*
11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.
323 South Hill St., Los Angeles, California.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.
North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.
6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder.
Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.
Box 56, Gardner, Mass.
7—

1877.

Rollin Kirk Adair, Indian Territory. Hotel.
Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene. Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer.
East Westmoreland.

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher.
334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.
Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.

13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)
73 Green Street, Leominster, Mass.

3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer.
The Elms, Springfield, Vt.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler.
5 Liberty Street, Concord.

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician.
306 Walnut Street, Newtonville, Mass.

6—*1

1880.

Charles Harvey Hood, Derry. Milk Contractor.
494 Rutherford Avenue, Boston, Mass.

1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.
Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer. *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. Real Estate and Investments. *White River Junction, Vt.*

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Berlin.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. *Cliff Street, Malden, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *1130 So. 20th St., Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. County Physician.
San Elizario, Texas.

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt., Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883-1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Electrical Engineer, Foreign Department General Electric Company, 44 Broad Street, N. Y. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer.
Logan, Ohio.

Frederick Plummer Comings, Lee. Trustee New Hampshire College 1893-1903. Private business.
2310 North 29th Street, Tacoma, Wash.

Frank Harry Follansbee, Canaan. Railway Mail Clerk.
41 Sharon Street, West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.
231 So. Hayne Street, Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Registered Druggist.
Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop. *121 Rantoul Street, Beverly, Mass.*

Charles Minot Woodward, Hanover. Principal of School.
Rodgers, Bell Co., Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Dealer in Real Estate, and Farmer. *McKinley Block, Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.
Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. Real Estate, Insurance Agent. *Main St., Ludlow, Vt.*

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail.
587-593 Washington Street, Dorchester, and 529-533 Dudley Street, Roxbury, Mass. 32 Milville Avenue, Dorchester, Mass.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *5 Allen Street, San Juan, P. R.*
8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.
Vernal, Utah.

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895-'97. Farm Superintendent.
Box 173, North Uxbridge, Mass.

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes Bridge, Ill.
Office 50 78th Street, Chicago, Ill.

Edward Alonzo Bailey, West Swanzey. Chair Maker.
55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. With North British and Mercantile Fire Insurance Company, 76 William Street, New York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890-'94. Grain Merchant. *Framingham, Mass.*
11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician.
815 Beacon Street, Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.
Clinton, Mass.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Instructor in Modern Languages in the State College, "St. Cyrille," Maître au Gymnase, "St. Cyrille," de Gouvernement, Tirnovo, Bulgarie. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *95 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law. Solicitor for Hillsborough County. *146 Main Street, Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department. *3407 Holmead Avenue, N. W., Washington, D. C.*

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster. *U. S. Weather Bureau Office, Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Manager Western Sprinkler Risk Association. *240 La Salle Street, Chicago, Ill.*

George Albert Sanborn, Rochester. Salesman for Grand Union Tea Company. *Rochester.*

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer United States Reclamation Service. *Commercial Club Building, Salt Lake, Utah.*

Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *U. S. Weather Bureau, Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Ogdensburg Gas Company; General Manager Ogdensburg Power and Light Company; General Manager Ogdensburg Street Railway Company. *1 Ford Street, Ogdensburg, N. Y.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau, in charge Columbus, Ohio, and of Ohio Section. Special Lecturer in Meteorology at Ohio State University. *16 East Broad Street, Columbus, Ohio.*

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673-1679 Washington Street, Boston; 529-535 Dudley Street, Roxbury; and 587-593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America. *6 Worcester Square, Boston, Mass.*

Charles Walter Earl Scott, Winchester. Mechanic. *Darrington, Wash.*

David Elmer Stone, Hartford, Vt. Grain Merchant. *Framingham Center, Mass.*

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department. *56 Carmel Street, New Haven, Conn.*

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Inspector, Reclamation Service, U. S. Geological Survey. *Chamber of Commerce Bldg., Denver, Colo.*

†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier. *51 North Market Street, Boston, Mass.*

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster. Merchant. *Hampton.*

Russell Marden Everett, Chester. Lawyer. *172 Market Street, Newark, N. J.*

Edward Payson Stone, Canaan Center. Farmer. *Orford, N. H.*

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Acting Supt. of Bridges and Buildings.
Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Assistant Chemist, New York Agricultural Experiment Station.
84 Lyceum Street, Geneva, N. Y.

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894). Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station, and Lecturer Yale University.
296 McKinley Ave., New Haven, Conn.

Frank John Bryant, Enfield. Post-office Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor.
13-21 Park Row Building, New York City.

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Heating and Ventilating Engineer.
551 Boylston St., Boston, Mass.

Orrin Moses James, Northwood. Civil Engineer and Surveyor.
Northwood Narrows.

Arthur Whitmore Smith, M. S. (Wesleyan University, 1895), Norwich, Vt. Assistant Professor of Physics, University of Michigan. *Ann Arbor, Mich.*

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Farmer and Fruit Grower.
Keene.

Frederic William Howe, Hollis. Professor of Chemistry and Dietetics, State Normal School, Framingham, Mass., and Scientific Adviser for the Walker Gordon Laboratory Co.
793 Boylston Street, Boston, Mass.

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company. *56 Pine Street, Bellows Falls, Vt.*

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Costkeeping Department). *31 Chestnut Street, Claremont.*

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer, Irrigation Construction. *Hazen, Nevada.*

4—

1896.

Lewis Harris Kittredge, Keene. Treasurer and Manager of Peerless Motor Car Company. *Lisbon Street, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business. *333 Walnut Street, Manchester.*

Carrie Augustus Bartlett, Lee. Teacher. *South Lee.*

Mary Blaisdell Bartlett, Epping. Instructor Pinkerton Academy. *Derry.*

Walter French Buck, Manchester. Science Teacher, High School. *Pawtucket, R. I.*

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Woonsocket High School. *94 Blackstone Street, Woonsocket, R. I.*

Irving Lyford Dennett. Chief Engineer, New York Glucose Company. *Edgewater, N. Y.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Manual Training and Chemistry, Rayen School. *215 Arlington St., Youngstown, Ohio.*

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*

Roscoe Hart Shaw, Milton. Assistant Chemist, Kansas Agricultural Experiment Station. *Manhattan, Kansas.*

Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers. *Nome City, Alaska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher. *Boston, Mass.*

Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm. *Stonehurst Farm, Intervale.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher, Lee, N. H.
R. F. D. 5, Dover.

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Durham.

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Professor of Agriculture, Delaware College. *Newark, Delaware.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry.
1937 13th Street, N. W., Washington, D. C.

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *Box 696, Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Electrical Engineer Kyoto Electric Light Company. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Mail Clerk.
25 Belknap Street, Dover.

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Instructor in Testing Laboratory, College of Engineering, University of Wisconsin.
919 University Avenue, Madison, Wis.

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.
93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With the John Hancock Insurance Company.
346 East Thirty-second Street, Paterson, N. J.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Foreman, Full Fashion Department, Sulloway Hosiery Mill.
121 Glenwood Avenue, Franklin Falls.

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.
52 Grove Street, Somersworth.
18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. Representative Crocker-Wheeler Company.
425 Empire Building, Atlanta, Ga.

‡Harry Everett Barnard, Nashua. Chemist, State Board of Health, State Laboratory of Hygiene. *Concord.*

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer, Mechanical and Constructing Engineer, Bingham Consolidated Mining and Smelting Company, Bingham Copper and Gold Mining Company. *700 McCornick Building, Salt Lake City, Utah.*

Irving Atwell Colby, Exeter. Instructor in Machine Design, Sibley College, Cornell University.
119 Stewart Avenue, Ithaca, N. Y.

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. Engineering Department General Electric Company.
35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. *Fort Niagara, New York, N. Y.*

Louis Hobart Kenney, Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.
Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.
919 University Avenue, Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer.
Pomfret Centre, Conn.

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops. *Concord.*

Etta Lillian Simpson, Durham. Principal Grammar School.
Acushnet, Mass.
12—

1900.

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Co. *1007-9-11 Locust St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School. *325 Kennard Building, Manchester.*

‡ Alumni trustee.

Frances Burnham, Durham. Teacher Lincoln School.
554 Main Street, Wakefield, Mass.

Blanche Mary Foye, Durham. Teacher in Concord High School.
Concord, Mass.

Charles Elliott Page Mathes. With Wetherbee Allis Company, Clothiers. *456 Central Avenue, Dover.*

Edward Emil Nelson, Nashua. Mining Engineer, Member of American Institute of Mining Engineers.
530-3 East Street, Salt Lake City, Utah.

Alvena Pettee, Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903, Professor of Home Economics, Clarkson Memorial Institute of Technology. *16 Elm Street, Potsdam, N. Y.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Testing Department, General Electric Company. *138 Lakeview Avenue, Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.
Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.
Los Angeles, Cal.

Robert Morrill Wright, Hill. Principal Grammar School.
Hill, N. H.

12—

1901.

Henry Harold Calderwood, Nashua. With General Electric Co. *403 Summer St., Lynn, Mass.*

Charles Henry Courser, Warner. Engineer, with Rockingham County Light & Power Co.
7 Columbia St., Portsmouth, N. H.

Alice Emerson Dorr, Dover. *35 Summer Street, Dover, N. H.*

Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company.
671 Western Avenue, Lynn, Mass.

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.

Charles Alvum Hunt, Nashua. Second Lieutenant and Battalion Q. M. and Commissary, Twelfth United States Infantry.
Camp Jossmann, Guimaras, P. I.

Edwin Price Jewett, Lakeport. In charge Prescription Department Walker Gordon Laboratory Co.
2112 Michigan Avenue, Chicago, Ill.

Robert McArdle Keown, Pomona, Fla. Instructor in Mechanical Drawing and Machine Design, University of Pennsylvania. *University of Pennsylvania, Philadelphia, Pa.*

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Dixon Academy. *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City. *Durham.*

Edson Albert Straw. Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Rollinsford. *Rural Route No. 2, Dover.*
Rural Route No. 2, Dover.

Edwin W. Gilmartin, Nashua. Engineering Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

John C. Kendall, Peterborough. Instructor in Dairying, North Carolina College of Agriculture and Mechanic Arts.
West Raleigh, N. C.

Harry M. Lee, Moultonborough. Foreman Three Rivers Farm. *Dover.*

Abiel A. Livermore, Wilton. Rose Grower.
153 Greenwood St., Auburn, R. I.

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Farmer, Indian Rock Farm.
Hampton Falls.

Charles A. Payne, Portsmouth. Engineering Department, General Electric Company. *50 Mall Street, West Lynn, Mass.*

Eugene P. Runlett, Durham. With Williams & Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Internal Revenue. *Treasury Department, Washington, D. C.*

9—

1903.

Harry David Batchelor, West Upton, Mass. Assistant Chemist, Experiment Station, New Hampshire College, Durham, N. H.

Edgar Forest Bickford, Rochester. Westinghouse Electric & Manufacturing Company. *P. O. Box 496, East Pittsburg, Pa.*

Frank Ray Brown, Durham. Machinist with Draper Manufacturing Company.
21 Union Street, Bancroft Parkway, Hopedale, Mass.

Everett William Burbeck, Haverhill. Mining Engineer with Oliver Iron Mining Company.
P. O. Box 370, or Spruce Office, Eveleth, Minn.

†Everett Garfield Davis, Newmarket.

Albert Noah Otis, Durham. Testing Department, General Electric Company, Schenectady, N. Y.
31 Eagle St., Schenectady, N. Y.

Ralph Harvey Rollins, East Concord. Engineer, Irrigation Construction. *Hazen, Nev.*

Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass.
9 Alston Street, Somerville, Mass.

David Albert Watson, Durham. Assistant in Highland Conservatories.
175 Stevens St. or 19 Robbins St., Lowell, Mass.

Melvin Johnson White, Farmington. Principal High School.
17 Main Street, Upton, Mass.

10—

1904.

Leander Ashton, Pittsfield. Gardner, Hardtcourt, North Andover, Mass.

†Walter Allen Barker, Pittsfield.

Edgar Charles Bickford, Durham. Boston Elevated Power Station, Boston, Mass.

Percy Anderson Campbell, Litchfield. Herdsman, Brooklawn Farms. *Morris Plains, New Jersey.*

Carrol Winfred Farr, North Weare. Dairy Farmer.
North Weare, N. H.

Joseph Ezra Goodrich, New Durham. Instructor in Science and Agriculture at Nichols Academy, Dudley, Mass.

†George Herbert Hill, La Crosse, Wis.

Thomas Jefferson Laton, Nashua. Testing Department, General Electric Company. *132 So. Common Street, Lynn, Mass.*

Raymond Louis Lunt, Dover. Surveyor.
Box 14, Dover, N. H.

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School, Woodbine, New Jersey.

Samuel Ambrose Richardson, Charlestown. Surveyor.
Box 235 Charlestown, N. H.

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) Hotel Clerk, Raymond Hotel, Pasadena, California.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Farmer. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. (1902.) With H. S. Miller, Florist, West Fairview, Cumberland Co., Pa.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Fruit Farmer. *Chester.*

†Thornton N. Weeks, Greenfield. (1902.)

Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.

Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros. *406 W. 60 Place, Chicago, Ill.*

†Harry Garfield Brierley. (1903.) Dover.

†George Grover Manning. (1903.) Boston, Mass.

†James Henry Nixon. (1903.) East Brentwood.

†Roscoe Franklin Swain. (1903.) South Hampton.

Erland Graves Batchelder. (1904.) Wilton. Dairying and Gardening, Kimball Heights Farm. *R. F. D. No. 3, Wilton, N. H.*

‡Wesley Pillsbury Flint. (1904.) Newburyport, Mass.

Henry Marston Shurbert. (1904.) Northwood Ridge.

‡Special student New Hampshire College.

SUMMARY.

Graduates, Bachelors of Science, 1871-1904	259
Graduates, Two Years' Course	26
Agriculturists	53
Architects	1
Business Pursuits	54
Chemists	6
Clergyman	1
Civil, Mechanical, Electrical, and Mining Engineers	32
Draftsmen	5
Lawyers	5
Manufactures and Mechanics	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	17

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.

*Dead.

Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Doe, Miss Mary, 1902.
Dorr, Miss A. E., 1901.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. 1904 (2 year), 1902.
Farwell, H. G., 1901.
*Flint, W. F., 1877.
Flint, W. P. (2 year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Goodrich, J. E., 1904.
Gowen, Miss E. G., 1901.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, W. D. F., 1899.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, G. H., 1904.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.

*Dead.

Knowles, A. C. (2 year), 1900.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
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Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
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O'Gara, E. D., 1888.
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Record, C. E., 1878.
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Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
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Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
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Sanders, C. H., 1871.
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*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Shurbert, H. M. (2 year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
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*Thompson, F. E., 1882.
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Tolles, B. D., 1898.

*Dead.

Trow, C. A., 1895.
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Wood, A. H., 1885.
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SPECIMEN ENTRANCE EXAMINATION PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}}-\frac{1}{2}a\sqrt{x}$ and $3bx^2-\frac{2}{3}ax^{\frac{1}{2}}+4b$.

3. Multiply:

$(-4ab)$, $(3\sqrt{ab})$, $(-2\sqrt{-ab})$, $(3\sqrt{-ab})$, $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of x^6+y^6, $x^{-1},-y^{-6}$, $x^{2m}+x^m-2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a+\sqrt{b}}}$, $\frac{1}{a^{\frac{1}{2}}+b^{\frac{1}{5}}}$ to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax}+\frac{3}{by}=5$ and $\frac{5}{ax}-\frac{3}{by}=2$.

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x-2a+3a^2)^2$. Perform operations indicated.

8. $3ax^2-2x+3b=0$. Solve for x

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3}+1\frac{3}{7}$.

3. $3.014+27.900\div.047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}}\times\frac{4}{3}\div\frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual, and compound interest on $1,200 for 3 years, 2 months, and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, litre, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in litres?

BOTANY.

1. What are the three principal parts of a plant, and what does each do for the plant?

2. What is the embryo? Of what parts does it consist? Where does the root originate? What part of the root takes food material from the soil?

3. What are the principal steps or periods in the life history of a plant?

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. Draw diagrams of the following leaves: (*a*) entire ovate; (*b*) lanceolate serrate; (*c*) lobed; (*d*) palmately cleft; (*e*) pinnately parted.

6. Draw diagrams of the following forms of inflorescence: raceme, spike, head, umbel, cyme.

7. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

8. To what families do the following plants belong: cucumber, peach, lettuce, cabbage, potato, corn, onions, celery, clover, strawberry?

9. How would you distinguish between an elm and an oak, a pine and a hemlock, an ash and a hickory?

10. What is the difference between a fruit and a seed?

ENGLISH.

The composition must be correct in spelling, grammar, and punctuation.

I.

Select any *four* of the following topics, and write a short composition on each:

1. The Speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one*.

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir*; third singular, *aller*; third plural, *finir*. (*b*) Principal parts, *faire, venir, mettre, voir, prendre.*

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me

this pen, if you please. (6) I shall see him to-morrow, and he will give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston to-day, but she will be in Durham to-morrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre côté du sentier, tiré par un homme qu'il n'avait point aperçu et qu'il ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d' Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, rencontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orsa tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitôt, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantômes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hammeau en hameau, de chaumière, il allait, il allait, il allait . . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces

pauvres mains habituées à recevoir de petites piéces de monnaie blanche. Le curé fit même des folies, des vraies folies; il était lancé, il ne se connaissait plus. Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (a) Principal parts of brechen, gehen, halten, lesen, schlagen. (b) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schuchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.—[*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans hatte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechts oder nach links zu schauen, und endlich im Sommer des Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet.—[*Hillern, Hoeher, als die Kirche.*]

(c) Elisabeth setzte sich unter eine uberhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.—[*Storm, Immensee.*]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.

2. Draw a map showing Asia Minor, Macedonia, and the principal Grecian cities.

3. Locate, and with a sentence for each describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.

4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtæus, Lycurgus.

5. Give a brief account of the Peloponnesian War.

6. Give a brief account of the Expedition of the Ten Thousand.

7. Give an account of the life and work of Heredotus.

8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time, in the Transvaal?

2. Is it now day, or night, in Manila.

3. Describe the climate of Havana, Pekin, and Cape Nome.

4. State the causes of the variations in season, climate, day, and night.

5. Describe the trade winds.

6. What ocean currents produce the fogs on the Grand Banks? Why?

7. What causes the high tides in the Bay of Fundy?

8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of thirty miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when twelve pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection, and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the

nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpendicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the polygon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate, and with a sentence for each describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott Case.

7. Starting with 1789, explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term, and the election provisions for senators; for the members of the House of Representatives.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS

CATALOGUE

1905-1906

DURHAM, NEW HAMPSHIRE

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OF THE

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1905-1906

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1906

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1907

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COLLEGE CALENDAR.

1905.

Sept. 5–6. Examinations for admission begin Tuesday at 9 a. m.

Sept. 7. Regular college exercises begin Thursday at 10 a. m.

Oct. 11. Stated meeting of Trustees.

Dec. 22. First term ends Friday night.

WINTER VACATION.

1906.

Jan. 9. Second term begins Tuesday at 10 a. m.

Jan. 10. Stated meeting of the Trustees.

March 16. Second term ends Friday night.

SPRING VACATION.

March 27. Third term begins Tuesday at 10 a. m.

April 11. Stated meeting of Trustees.

June 3. Baccalaureate sermon, Sunday at 10.45 a. m.

June 4. Prize Drill 8 p. m. in the Armory.

June 5. Class Day.
Stated meeting of Trustees.
Glee Club concert at 8 p. m. in Thompson Hall.

June 6. Commencement Day, Wednesday.

SUMMER VACATION.

Sept. 4–5. Examinations for admission begin Tuesday at 9 a. m.

Sept. 6. Regular college exercises begin Thursday at 10 a. m.

Oct. 10. Stated meeting of Trustees.

Dec. 21. First term ends Friday night.

WINTER VACATION.

1907.

Jan. 8. Second term begins Tuesday at 10 a. m.

BOARD OF TRUSTEES.

His Excellency, Gov. JOHN McLANE, M. S., *ex officio.*
CHARLES W. STONE, A. M., East Andover, *President.*
Pres. WILLIAM D. GIBBS, Durham, *ex officio.*
Hon. LUCIEN THOMPSON, Durham, *Secretary.*
Hon. JOHN G. TALLANT, Pembroke.
GEORGE B. WILLIAMS, Walpole.
Hon. WARREN BROWN, Hampton Falls.
Hon. ROSECRANS W. PILLSBURY, Londonderry.
Hon. RICHARD M. SCAMMON, Stratham.
WALTER DREW, Colebrook.
Hon. NAHUM J. BACHELDER, M. S., A. M., East Andover.
GORDON WOODBURY, A. B., Ph. D., LL. B., Bedford.
———————— *Alumni Trustee.*

WALTER M. PARKER, A. B., Manchester, *Treasurer.*

OFFICERS OF INSTRUCTION.

WILLIAM D. GIBBS, M. S., *President and Director of the Experiment Station.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics and Civil Engineering.*

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy; Librarian.*

FRED W. MORSE, M. S., *Professor of Organic Chemistry.*

CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry.*

FRANK WILLIAM RANE, B. Agr., M. S., *Professor of Horticulture and Forestry.*

CARLETON A. READ, S. B., *Professor of Mechanical Engineering.*

FREDERICK W. TAYLOR, B. Sc. (Agr.), *Professor of Agriculture.*

E. DWIGHT SANDERSON, B. S., *Professor of Zoölogy and Entomology.*

ARTHUR F. NESBIT, S. B., A. M., *Professor of Physics and Electrical Engineering.*

WILLIAM E. HUNT, B. S., First Lieutenant Eighth U. S. Infantry, *Professor of Military Science and Tactics.*

RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

ERNEST R. GROVES, A. B., B. D., *Associate Professor of English and Philosophy; Secretary of the Faculty.*

EDWARD L. SHAW, B. Sc. (Agr.), *Assistant Professor of Agriculture.*

ARTHUR ELSON, A. B., S. B., *Assistant Professor of Drawing.*

EDWARD H. HANCOCK, B. S., *Assistant Professor of Mechanical Engineering.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*
HARRY F. HALL, *Instructor in Horticulture.*
A. R. ROSE, B. S., *Instructor in Chemistry.*
CHARLES BROOKS, M. S., *Instructor in Botany.*
*FRANK WENNER, B. S., *Instructor in Physics and Electrical Engineering.*
FRANK R. BROWN, B. S., *Instructor in Machine Work.*
WILLIAM O. ROBINSON, B. S., *Student Assistant in Chemistry.*
JOHN L. RANDALL, B. S., *Student Assistant in Zoölogy and Entomology.*
FRANK A. TINKHAM, B. S., *Foreman of Farm.*

MABEL E. TOWNSEND, A. B., *Associate Librarian, Registrar.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*
ALICE G. BAKER, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

*Resigned Nov. 1st, 1905.

AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

HON. JOHN G. TALLANT, *Chairman* . Pembroke
CHARLES W. STONE, A. M., *Secretary* East Andover
HON. WARREN BROWN . . . Hampton Falls
HON. N. J. BACHELDER, A. M., M. S. East Andover
PRES. WILLIAM D. GIBBS, *ex officio* . Durham

STATION COUNCIL.

WILLIAM D. GIBBS, M. S., *Director.*
FRED W. MORSE, M. S., *Chemist and Vice-Director.*
FRANK WILLIAM RANE, B. AG., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. SC. (Agr.), *Agriculturist.*
E. DWIGHT SANDERSON, B. S., *Entomologist.*
EDWARD L. SHAW, B. SC. (Agr.), *Associate Agriculturist.*
IVAN C. WELD, *Dairy Manufactures.*
HARRY F. HALL, *Associate Horticulturist.*

ASSISTANTS.

EDWARD HAROLD GOODNOW, B. S., *Assistant Chemist.*
CHARLES BROOKS, M. S., *Assistant Botanist.*
JOHN L. RANDALL, B. S., *Assistant Entomologist.*
FRANK A. TINKHAM, B. S., *Foreman of Farm.*
MABEL MEHAFFEY, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established

that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the

buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $13,000; and from various other sources, about $5,000.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
   - *a.* Four years' course.
   - *b.* Two years' course.
   - *c.* Ten weeks' course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided,*

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall

cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition	Free	$60.00
Text-books	$10.00 to	30.00
Military uniform for new students	16.00 to	16.00
Drawing instruments and materials	7.50 to	30.00
Fees*	20.00 to	20.00
Room rent, including fuel	30.00 to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00 to	122.50
Total	$188.50	$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a given term are required to register at the president's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

Students shall be admitted to classes only upon presentation of their registration card.

ATTENDANCE.

All students are required to attend chapel; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No student shall receive his registration card or attend classes until his bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any stu-

dent, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

AMOUNT OF WORK.

No student shall be permitted to carry less than 16 nor more than 21 credit hours per week of class-room work or its equivalent, exclusive of military tactics, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the two days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The

thesis shall be typewritten or printed upon standard thesis paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt lettered on first cover with title, name of author, degree sought, and year of graduation. This bound copy shall be approved by the faculty, filed and left with the college librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' courses will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 3 p. m. on the next day, Wednesday.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston & Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One-half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for 50,000 volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drawing-room and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity.

The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is of cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a

refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room

for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARNS.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about $10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L, 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommodate 56 head of cattle. The basement of the L contains pig pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently remodeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds and are adapted for forcing vegetables. The remaining houses have raised beds, excepting the centre of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine

the college flock of thoroughbred Southdowns and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-room, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Persimmons and tropical fruits are received from Florida, grapes and pears from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varities of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for sometime after field conditions have gone by.

The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam

pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a 5½ by 8 by 7 air pump; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 100 horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and, when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the neces-

sary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student

molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or afford-

ing loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the 500-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete 55-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter and transformer.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. This workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, and a small hand-driven metal planer.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of about 12,000 bound volumes and 6,000 pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about 8,000 well-selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the

advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German will be required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and

professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and

chemical periodicals which the library contains. The large and well furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely during the fall and spring terms, the former having special reference to the duties of the line.

The organization is a battalion of two companies, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished rifles and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty and may at other times provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed $16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class, all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the military secretary of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		1 unit
" " C		2 units
" " D	(Physics and Botany)	2 "
" " E		2 "
		10 units
	(Optional)	4 "

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		2 "
" " C		2 "
" " D	(Physics)	1 unit
" " E		2 units
		10 units
	(Optional)	4 "
Total		14 units

ENGINEERING AND CHEMICAL COURSES.

Required Group A		3 units
" " B		1 unit
" " C		3 units
" " D	(Physics)	1 unit
" " E		2 units
		10 units
	(Optional)	4 "
Total		14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1906, 1907 and 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The

examination will be upon subject-matter, form and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1906, 1907 and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

GROUP B.*

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. If one unit is offered it may be for either American History or Ancient History. If two or more units are offered, one unit must be for American History and one for Ancient History. In case one year has been given to American History and two years to Grecian and Roman History, either with or without other Ancient History, credit will be given for three units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's Students' History, or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek

* A candidate may present either the first and third, or the first and second units of this group.

History, Allen's Roman People, Myers' Rome and Morey's Outlines of Roman History.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of 50 plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

—1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.

—½ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.

—½ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.

—½ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—½ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Kaiser and Monteser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Carruth's German Reader (Ginn & Co.).

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

—2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

—2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.

—2 units.

Virgil, six books.
Cicero, six orations.

—2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

—2 units.

In place of examinations, certificates will be received from approved preparatory schools in New England. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements *in full;* in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes exceptions in more than a third of the work required for admission to any course, or if the certificate makes *any* exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zoötechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other. The course is given to the First Year Short Course Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and

experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape and other forage crops. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Short Course Students.

Three exercises per week. S.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including

a discussion of inbreeding, crossing and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. This course must be preceded by Course 11. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1905. Elective for Agricultural Seniors.

Four exercises per week. F.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock and the raising of poultry. It is a general elementary course especially arranged for the Second Year Short Course Students.

Three exercises per week. F.

Agriculture 19. Breeds of Cattle and Sheep.

Lectures and recitations upon the origin, history, characteristics, adaptability and management of the different breeds of cattle and sheep. In the study of cattle the beef breeds are considered as to the demands of the market, and the preparation of cattle for sale and exhibition; the dairy breeds are studied from the standpoint of milk and butter production and the selection of individuals for the dairy herd.

In the study of sheep particular attention is given to their care under various conditions, the raising of early lambs and the different grades, uses and value of wool. One afternoon each week for judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 20. Breeds of Horses and Swine.

Lectures and recitations upon the origin, history, characteristics and management of the different breeds. The breeding and classification of horses for the market; training and the proper methods of harnessing and hitching. The preparation of swine for exhibition; the influence of different kinds of food upon pork production. One afternoon each week for judging and scoring.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 21. Poultry.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the subject of breeding and feeding; the location and building of poultry houses; a study of incubators and brooders; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Elective for Agricultural Seniors and Second Year Short Course Students.

Two exercises per week. W.

RURAL ENGINEERING AND FARM ECONOMY.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

1. Introductory Botany.

A study of the general structure and the life processes of plants by means of recitations and laboratory work. For First Year Short Course Students.

Three exercises per week. F.

2. Cryptogamic Botany.

Recitations and laboratory work on a number of lower forms of plant life. Open to First Year Short Course Students who have taken Course 1.

Two exercises per week. W.

3. Structural Botany.

A study of structure and reproduction in the higher plants; plant societies and plant families. Recitations, lectures and laboratory work. Open to First Year Short Course Students who have taken Course 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures, recitations and laboratory work of some of the more important fungous diseases and the means of preventing their injuries. For Second Year Short Course Students.

Three exercises per week. F.

5, 6, 7. Advanced Botany.

Three exercises per week for the senior year. Arranged to suit individual needs of those who have taken Courses 8 to 13.

8. Plant Physiology.

Lectures and laboratory studies on plant structures as related to plant activities. For Agricultural and General Freshmen.

Three exercises per week. S.

9. Cryptogamic Botany.

A study of a representative series of cryptogams, beginning with the lower and advancing to the higher forms. Special attention will be given to parasitic fungi. For Agricultural and General Sophomores.

Three exercises per week. F.

10. Plant Morphology.

A continuation of the series of plant forms begun in course 6, including a study of vascular cryptogams, gymnosperms and an-

giosperms. Lectures and laboratory studies. Open to students who have completed Courses 5 and 6.

Three exercises per week. W.

11. Ecology and Taxonomy.

A study of the higher plants represented in the local flora, with reference to their environment; plant societies and plant families. Lectures, laboratory and field work. Open to students who have taken Course 7.

Two exercises per week. S.

12. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Open to students who have completed Course 8.

Three exercises per week. F.

13. Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work. Open to students who have completed Course 8.

Three exercises per week. W.

14. Advanced Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration, irritability and the influences that affect them. Open to students who have completed Course 8.

Three exercises per week. S.

CHEMISTRY.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject

must be preceded by Chemistry Courses 1, 2 and 3. For Agricultural and Chemical Sophomores; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food and Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Sophomores; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Chemical Engineering Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years.

Open only to students who have completed Chemistry 4.

Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agri-

cultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.
Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.
One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13 and is open to students who have completed Courses 1, 2 and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Three exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the

quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Chemical Engineering Course who are in advance of their course.

22. Elementary Applications.

An elementary course arranged for the First Year students in the Short Course in Agriculture with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc.

Three exercises per week. S.

DAIRYING.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the various tests and their application on the dairy farm and in the creamery or milk inspector's laboratory. For Agricultural Juniors.

Three exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream. For Agricultural Juniors and students in ten weeks' course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors and Two-year Students.

Open to those who have completed Course 1.

Three exercises per week. S. and F.

4. Butter-making.

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Courses 1 and 3.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural Seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts and will be required to present sample accounts cover-

ing various periods. Plans of dairy buildings, creameries and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-year Students.

Five exercises per week. S.

8. Practical Work.

For students in ten weeks' course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. For students in the ten weeks' course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations and lectures. For students in the ten weeks' course in Dairying.

One exercise per week. W.

DRAWING.*

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

*Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

19. Industrial Drawing.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints. For all Freshmen.

Two exercises per week. F.

20. Mechanical Drawing.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For all Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternating with shop-work on Wednesdays.

21. Descriptive Geometry.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

22. Free-hand and Mechanical Drawing.

For all Freshmen not taking Drawing 21.

Three exercises per week. S.

23. Descriptive Geometry.

Continuation of 21. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Sophomores. Elective for General Course Sophomores.

Two exercises per week. F.

24. Elementary Machine Drawing.

For Chemical Sophomores.

Two exercises per week. F.

25. Elementary Machine Drawing.

Mechanism drawing; detail and assembly drawing of simple machines.

For Engineering Sophomores.

Two exercises per week. W.

26. Machine Drawing.

Continuation of 25.

For Engineering Sophomores.

Five exercises per week. S.

27. Machine Drawing.

Working drawings of various machines and machine tools. For Engineering Juniors.

Two exercises per week. F.

28. Elementary Machine Design.

For Engineering Juniors.

Two exercises per week. W.

29. Steam Engine Design.

Engine details and valve-gear problems. For Engineering Juniors.

Two exercises per week. S.

30. Machine Design Drawing.

Completion of 29; the Stephenson link-motion as applied to the locomotive. 30:—The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of Applied Mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors who have taken Drawing 29 and Mechanical Engineering 4–6 and 8–11.

Five exercises per week. F.

31. Mill Engineering Drawing.

Figuring for strength of flooring, beams, brick and stonework in a mill storehouse, with drawing of same. For Mechanical Engineering Seniors.

Four exercises per week. W.

32. Mill Design.

Principles and practice of cotton mill construction. Details and processes of cotton spinning and cotton machinery. The planning and laying out of a complete mill of given spindle capacity, with regard to location and number of machines, transmission and distribution of power, light, fire protection, etc.

Three exercises per week. S.

33. Free-hand Drawing.

Light and shade drawing from casts and still life; charcoal work. Elective for General Course Sophomores.

Two exercises per week. W.

34. Free-hand Drawing.

Pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. S.

35. Architectural Drawing.

Studies of architectural detail and historic ornament.
Elective for General Course Juniors.

Three exercises per week. F.

36. Architectural Drawing.

Continuation of 35.
Elective for General Course Juniors.

Two exercises per week. W.

37. Architectural Drawing.

The design of a building, with details of ornament.
Elective for General Course Juniors.

Two exercises per week. S.

38. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. F.

39. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. W.

40. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. S.

NOTE.—Courses 38-40 will be given first in 1906-1907, and will correspond to the third year's work in a course of Architecture.

ELECTRICAL ENGINEERING.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week. F.*

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. 1, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, second term, *three exercises per week. W.*

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Electrical Engineering Juniors, first term, *three exercises per week. S.*

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, first term, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 4 and 5.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *six exercises per week. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for

the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6, 7, 8 and 9 are based. Reference is also made to other standard works.

7. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, first term, *five exercises per week. F.*

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

8. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *five exercises per week. W.*

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week. S.*

Steinmetz's text is used in class.

Electrical Engineering 10 to 18 are taken by Seniors of the Electrical Engineering Course.

10. The Telephone.

First term, *three exercises per week for six weeks. F.*

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

11. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

he text used is Maver's "American Telegraphy.

12. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

13. Electric Lighting.

Three exercises per week. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

14. Power Distribution for Electric Railroads.

Three exercises per week. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

15. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's "Electrical Testing in Physics and Electrical Engineering," Nichols' "Laboratory Manual in Physics and Applied Electricity," and Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

16. Electrical Laboratory.

Two exercises per week. W.

17. Electrical Laboratory.

Two exercises per week. S.

18. Thesis.

Three exercises per week. S.

19. Alternating Currents.

Three exercises per week for five weeks. S.

This is a brief course taken by Juniors of the Mechanical

Engineering Course upon completion of Courses 1, 2 and 3. The text-book used is Franklin and Williamson's "Alternating Currents."

20. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

21. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting and electric railroads, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 19 and 20. The subjects taken up in this course are more briefly treated than in Courses 10 to 14, inclusive.

Courses 22 and 23 are taken by Technical Chemistry Seniors.

Course 24 is elective for Agricultural and General Course Seniors.

22. Industrial Electricity.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries, e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution.

23. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

24. Industrial Electricity.

Three exercises per week. F.

This course is elective for Seniors of the Agricultural and General Courses. In an elementary way, study is made of such

subjects as the dynamo, motor, transformer, power transmission, storage batteries, incandescent and arc lighting, the telephone, telegraph and electric railroads.

ENGLISH.

1. Rhetoric and Composition.

Two exercises per week. F.

2. Rhetoric and Composition.

Two exercises per week. W.

3. Rhetoric and Composition.

One exercise per week. S.

Courses 1, 2 and 3, required of all Freshmen, have been made continuous courses.

Theme writing, book reviews, the theory of composition and an introduction to the principles of literary criticism.

4. English Literature.

Chaucer to Wordsworth. Lectures and readings. Special attention will be given to the theory of the drama. Open to Juniors.

Two exercises per week. W.

5. Wordsworth to Browning.

Text-book, lectures and readings. Special attention will be given to the work of Tennyson and Browning. Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

7. Course in debating.

This is intended to give the student a knowledge of the principles of argumentation and to accustom him to speaking in public.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Three exercises per week. F.

FORESTRY.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations of forest trees.

For Agricultural Juniors and second year two-year men.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting forest products. The physical properties of woods and forest botany and entomology are here further considered. Seminary and laboratory work.

Elective for those students showing special ability in Course 1.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for those having had Course 2.

Three exercises per week. S.

FRENCH.

Courses 1, 2 and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation and Composition continued.

Three exercises per week. W.

6. French Prose, History and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine and Molière.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

GEOLOGY.

1. Mineralogy.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Seniors.

Open to those who have completed Zoology 5 and Geology 1.

Four exercises per week. F.

GERMAN.

Courses 1, 2 and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5 and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.

Three exercises per week. W.

3. Reading, Translation and Composition; Sight Translation. Dictation.

Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.

Three exercises per week. F.

5. German Prose of the Nineteenth Century continued. Composition, outside reading.

Three exercises per week. W.

6. Easier works of Lessing and Schiller. Composition.

Three exercises per week. S.

7. Masterpieces of German Literature. Lessing and Schiller.

Three exercises per week. F.

8. Goethe. German Ballads and Lyrics.

Three exercises per week. W.

9. General review of German Literature, outside reading.

Three exercises per week. S.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation and paraphrasing the assigned texts.

HISTORY.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 offered in 1905–'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 9 are open only to those who have passed in History and Constitution of the United States.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

7. Political and Constitutional History of the United States from 1783 to 1840.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1840 to 1865.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. W.

9. Political and Constitutional History of the United States since 1865.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

HORTICULTURE.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field.

For Agricultural Freshmen.

Three exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores and second year two-year men.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each

student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and first year two-year men.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work.

For Agricultural Juniors and second year two-year men.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations and laboratory work. The culture and uses of ornamental plants are studied together with their history, classification, characteristics, propagation and uses on private and public grounds.

For Agricultural Juniors and second year two-year men.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping,

staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. S.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

Preceded by Courses 6 and 7.

Two exercises per week. S.

9. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Open to those having completed the first five courses in Horticulture.

Three exercises per week. F.

MATHEMATICS.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

5. Analytic Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For first year short course students.

Three exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Freshmen.

Open only to those who have taken Mathematics 1–24, Drawing 19–20.

Three exercises per week. S.

2. Mechanism.

For Engineering Sophomores.
Continuation of 1.

Two exercises per week. F.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. W.

4. Mechanics of Engineering.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive, and Physics 1.

Two exercises per week. F.

5. Mechanics of Engineering.

Continuation of 4.

Four exercises per week. W.

6. Mechanics of Engineering.

Continuation of 4 and 5.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Mathematics 1–7, Physics 1 and 2, Drawing 19–21.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S.

11. Materials of Construction.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors. Continuation of Courses 4–6.

Four exercises per week. F.

Course 11 is open only to those who have taken Courses 4, 5, 6 and 7.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6.

Three exercises per week. F.

13. Hydraulic Motors.

For Mechanical Engineering Seniors.

Course 13 is open only to those who have taken Course 12.

Three exercises per week. W.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 10 and must have taken or are taking 11 and 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week. S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Open only to those who have taken 4--6, 8--10 and 14.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Open only to those who have taken 4--6, 8--10, 14, 15 and 17.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

The design of boilers, boiler setting details, shafting, couplings and pulleys, with regard to the principles of Applied Mechanics

and strength of materials. Given as Machine Design Drawing. See Drawing 30.

Course 19 is open only to those who have taken Courses 4–6 and 8–11 and Drawing 29.

20. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Mill Design.

Given as Drawing 32.

Three exercises per week. S.

22. Elementary Steam Engineering.

For Engineering Sophomores.

Two exercises per week. S.

MILITARY SCIENCE AND TACTICS.

Each male student, unless a member of the Senior class, or physically unfit is required to drill and attend recitations in military science.

COURSE OF INSTRUCTION.

1. Military Drill.

Infantry drill regulations through the school of the battalion in close and extended order.
Advance and rear guards.
Outposts.
Marches.
Ceremonies; battalion review, parades and guard mounting.
Calisthenics and gymnastics.
Rifle practice.
First aid to the injured.
Signalling.

Four exercises per week.

2. Military Science.

Infantry Drill Regulations covered by practical instruction; Manual of Guard Duty; Small Arms Firing Regulations; Articles of War; enlistment and discharge papers; morning reports; field returns; muster rolls; rosters; ration returns; requisitions; property returns, etc., with lectures on military subjects, notes upon which are to be taken for subsequent examination.

One exercise per week.

3. Army Organization and Administration.

Lectures and preparation of military papers.
Elective for Seniors only.

One exercise per week.

PHILOSOPHY.

1. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart.

Open to Sophomores.

Two exercises per week. W.

3. Psychology.

An introduction to the study of the mental life. The practical needs of the student are related as closely as possible to the work of the course.

Open to Juniors and Seniors.

Three exercises per week. F.

4. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's "Philosophy of Education."

Open to Juniors and Seniors.

Three exercises per week. W.

5. Logic.

A study of the methods, fallacies and aims of human thinking. A preparation for work in science and in philosophy.

Open to Sophomores.

Two exercises per week. S.

7, 8 and 9. Advanced Pedagogy.

A one-hour course throughout the year. Some important work on the practice of education is made the basis for study. Free discussion of the teacher's problems is made a part of the class exercises. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for the practice teaching. The permission of the instructor is required before electing this course.

10. Herbartian Psychology.

This course attempts to make a thorough study of the system of Herbart and to relate his contributions to the problems of present-day teaching.

Open to Juniors and Seniors who have passed Course 3.

Three exercises per week. S.

11. Advanced Psychology.

This course is a natural continuation of Course 3. The emotional and volutional aspects of the mind are studied more carefully than is possible in the elementary course.

Open to all students who have passed Course 3.

Three exercises per week. F.

PHYSICS.

Courses 1 to 8 are taken consecutively by students of the Engineering Courses. Students in the Chemical Engineering Course take Courses 1 to 5, 7 and 8. Students in the course in Agriculture take Courses 1 to 4, and such part of Course 5 as may be given in the Winter term. They may also elect in the Senior year, Electrical Engineering 24, as

a continuation of Physics 5. Students in the General Course are required to take either Course 1 or 9, and they may elect Courses 10 to 13.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as the text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable

emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's "Elementary Lessons in Electricity and Magnetism" is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 and 23.

6. Elements of Least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself.

Physics 9 to 13 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. These courses are accepted as the work required in the course in agriculture. Their completion does not prepare the student to enter Courses 7 and 8.

9. Mechanics.

General Course Freshmen, three exercises per week. S.

This is a briefer course than Physics 1 and aims to meet the needs of the student wishing to obtain some knowledge of physical phenomena and its laws.

10. Heat.

Elective for General Course Sophomores, three exercises per week for six weeks. F.

11. Light.

Elective for General Course Sophomores, three exercises per week for five weeks. F.

12. Sound.

Elective for General Course Sophomores, three exercises per week for the last four weeks. F.

13. Electricity and Magnetism.

Elective for General Course Sophomores, three exercises per week throughout the term. W.

Physics 14 and 15 are intended to acquaint the student with the fundamental principles and facts of physics.

14. Elementary Physics.

First year of the short course in Agriculture, *three exercises per week. S.*

15. Elementary Physics.

Second year of the short course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 14.

POLITICAL SCIENCE.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1906–'07.

Open only to those who have taken Course 1.

Three exercises per week. W.

5. Socialism and Social Reform.

Readings, recitations and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in 1906–'07.

Open only to those who have taken Course 1.

Three exercises per week. S.

6. International Law.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week. S.

7. Public Finance.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

SHOP WORK.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Pattern Making and Foundry.

A continuation of 1.

For Chemical and Engineering Freshmen.

Two and one-half exercises per week. *W.*

NOTE.—Alternate with Drawing on Wednesdays.

3. Pattern Making and Foundry.

For Chemical and Engineering Freshmen.

Two exercises per week. *S.*

4. Forging.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. *F.*

5. Iron Work.

For Chemical and Engineering Sophomores.

Two exercises per week. *W.*

6. Iron Work.

For Engineering Juniors.

Two exercises per week. *F.*

7. Iron Work.

For Engineering Juniors.

Two exercises per week. *W.*

8. Iron Work.

For Engineering Juniors.

Two exercises per week. *S.*

9. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. *F.*

10. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. *W.*

11. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. *S.*

12. Wood Work.

For first year two-year students.

Three exercises per week. W.

13. Iron Work.

For first year two-year students.

Three exercises per week. S.

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. F.

15. Special Shop Work.

From one to four exercises per week. W.

16. Special Shop Work.

From one to four exercises per week. S.

17. Forging.

For Agricultural and General Course Freshmen.

Two and one-half exercises per week. W.

SPANISH.

Spanish 1, 2 and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. F., W., S.

Elective for General Course Students in Sophomore, Junior or Senior year.

ZOOLOGY.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teach-

ing or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page 37.

1. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores.

Three exercises per week. F.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Four exercises per week. F.

One hour per week through the year.

6. Principles of Zoölogy.

The history, fundamental principles, problems and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors or

Seniors having completed previous courses. Given in alternate year with Course 17.

Three exercises per week. W.

17. Comparative Zoölogy.

Lectures and reading upon the comparative anatomy and physiology of animals. For Agricultural and General Juniors and Seniors having completed previous courses. Alternates with Course 6.

Three exercises per week. W.

8. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors or Seniors. Alternate with Course 9.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors or Seniors having completed Course 3. Alternate with Course 7.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12 and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

14. Elementary Zoölogy.

The structure and habits of the invertebrate and lower vertebrate animals, with special study of insects. Recitations and

laboratory dissections of typical forms. For first year men of two-year Agricultural Course.

Three exercises per week. F.

15. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For first year men of two-year Agricultural Course. Completing Course 1.

Five exercises per week. W.

16. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily. Attendance is required of all students.

Military drill: Fall term M., T., Th., F., 7 to 7.50 a. m. Winter and Spring terms, M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

FRESHMAN YEAR.

For all Four-Year Courses.

FALL TERM.

	Exercises.
Rhetoric—English 1	2
Algebra—Mathematics 1	5
Wood Work—Shop Work 1	2
Drawing—Drawing 19	2
†History—History 1 or 4	3
French—French 1 or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
*Solid Geometry—Mathematics 2	3
Military Science	1

WINTER TERM.

Rhetoric—English 2	2
Trigonometry—Mathematics 3	4
§Pattern Making and Foundry—Shop Work 2	2½
‡Drawing—Drawing 20	2½
†History—History 2 or 5	3
French—French 2 or German—German 2	3

† History is taken by women in place of Shop Work. It is also open to students who are prepared for advance work.

* Optional. Attention is called to preparation required for Drawing 5, 6 and 7. (See page 61)

§ Engineering and Chemical courses take Shop Work 2; others Shop Work 17.

‡ For students taking History, two exercises per week in Drawing.

	Exercises.
Inorganic Chemistry—Chemistry 2	3
Military Science	1
Forging—Shop Work 17	2½

SPRING TERM.

Rhetoric—English 3	1
†Surveying—Mathematics 4	3
Mechanics—Physics 1	3
‡Mechanics—Physics 9	3
†Botany—Botany 8	3
†Wood Work—Shop Work 3	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 21 or 22	3
†History—History 3 or 6	3 or 4
French—French 3 or German—German 3	3
†Organic Chemistry—Chemistry 3	3
Military Science	1
Mechanism—Mechanical Engineering 1	3

COURSES IN AGRICULTURE.

Sophomore Year.

FALL TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Horticulture 2	1
Botany 9	3
Agriculture 19	3
Military Science	1

WINTER TERM.

German 5	3
Chemistry 4	3
Zoölogy 4	3
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3

†Students in the Engineering Course take Drawing and Shop Work. Students in Chemical Engineering also take Organic Chemistry. Students in the Agricultural Course take Botany, Surveying, Horticulture, and Organic Chemistry. Students in the General Course take Botany and History, and elect between Surveying and Organic Chemistry.

‡General Course students elect either Physics 1 or 9.

	Exercises.
Horticulture 3	3
Botany 10	3
Military Science	1

SPRING TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 20	3
Botany 11	2
Military Science	1

Junior Year.

FALL TERM.

Chemistry 6	3
Dairying 1 and 3	6
Zoölogy 5	4
Horticulture 4	3
Agriculture 2	3
Military Science	1

WINTER TERM.

Chemistry 7	2
English 4	2
*Zoölogy 6 or 17	3
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
*Agriculture 11	4
Military Science	1

SPRING TERM.

English 5	2
Geology 1	3
Horticulture 5	3
Agriculture 4	3
*Agriculture 12	3
Agriculture 13	4
*Zoölogy 7, 9 or 10	3
Military Science	1

Note.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

*Elective.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11 and Agriculture 12.

Senior Year.

FALL TERM.

(Required.)

	Exercises per week.
Geology 2	4
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)

Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)

Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Descriptive Geometry—Drawing 23	2
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3

	Exercises per week.
German—German 4	3
Forge Shop—Shop Work 4	2
Mechanism—Mechanical Engineering 2	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
Machine Drawing—Drawing 25	2
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
German—German 5	3
Machine Shop—Shop Work 5	2
Mechanism—Mechanical Engineering 3	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Electricity and Magnetism—Physics 5	3
German—German 6	3
Machine Drawing—Drawing 26	5
Elementary Steam Engineering—Mechanical Engineering 22	2
Military Science	1

COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Theoretical Electricity—Electrical Engineering 4	3
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1	3
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3

	Exercises per week.
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Theoretical Electricity—Electrical Engineering 5	3
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3 Theoretical Electricity—Electrical Engineering 6	
Engine Drawing—Drawing 29	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Theoretical Electricity—Electrical Engineering 7	5
Mechanical Laboratory—Mechanical Engineering 14	2
The Telephone, Electrical Engineering 10, six weeks The Telegraph, Electrical Engineering 11, six weeks Storage Batteries, Electrical Engineering 12, three weeks	3
Hydraulics—Mechanical Engineering 12	3
Electrical Laboratory—Electrical Engineering 15	2

WINTER TERM.

Electrical Laboratory—Electrical Engineering 16	2
Electric Lighting—Electrical Engineering 13	3
Power Distribution for Electric Railroads—Electrical Engineering 14	2
Mechanical Laboratory—Mechanical Engineering 15	3
Theoretical Electricity—Electrical Engineering 8	6
Multiple Expansion Engines—Mechanical Engineering 17	3

SPRING TERM.

Mechanical Laboratory—Mechanical Engineering 16	2
Gas and Hot Air Engines—Mechanical Engineering 18	3
Alternating Current Phenomena—Electrical Engineering 9	3
Electrical Laboratory—Electrical Engineering 17	2
Political Economy—Political Science 1	5
Thesis—Electrical Engineering 18	3

COURSE IN MECHANICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos—Electrical Engineering 1	3
Iron Work—Shop Work 6	2
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Iron Work—Shop Work 7	2
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3, five weeks Alternating Currents—Electrical Engineering 19, five weeks	3
Iron Work—Shop Work 8	2
Engine Drawing—Drawing 29	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Hydraulics—Mechanical Engineering 12	3
Machine Design—Drawing 30	5
Mechanical Laboratory—Mechanical Engineering 14	2

	Exercises per week.
Iron Work—Shop Work 9	2
Alternating Currents, Electrical Engineering 20, eight weeks Applications of Electricity, Electrical Engineering 21, seven weeks	3

WINTER TERM.

Mill Design—Drawing 31	4
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
Iron Work—Shop Work 10	1
Hydraulic Motors—Mechanical Engineering 13	3
Specifications and Contracts—Mechanical Engineering 20	3
Thesis	2

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18	3
Mechanical Laboratory—Mechanical Engineering 16	2
Political Economy—Political Science 1	5
Iron Work—Shop Work 11	2
Thesis	3
Mill Design—Drawing 32	3

COURSE IN CHEMICAL ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Elementary Machine Drawing—Drawing 24	2
German—German 4	3
Chemical Laboratory—Chemistry 4	5
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
German—German 5	3
Chemical Laboratory—Chemistry 10	7
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
Military Science	1

SPRING TERM.

	Exercises per week.
Integral Calculus—Mathematics 7	5
Mineralogy—Geology 1	3
German—German 6	3
Organic Chemistry—Chemistry 8	2
Chemical Laboratory—Chemistry 11	3
Electricity and Magnetism—Physics 5	3
Military Science	1

Junior Year.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6	3
Organic Chemistry—Chemistry 9	3
French—French 4	3
Mechanics of Engineering—Mechanical Engineering 4	2
Graphic Statics—Mechanical Engineering 7	2
Chemical Laboratory—Chemistry 11	4
Military Science	1

WINTER TERM.

Chemical Laboratory—Chemistry 11	4
Industrial Chemistry—Chemistry 13	2
Mechanics of Engineering—Mechanical Engineering 5	4
French—French 5	3
Physical Laboratory—Physics 7	3
Debating—English 7	1
Military Science	1

SPRING TERM.

Chemical Laboratory—Chemistry 11	4
Metallurgy—Chemistry 14	2
Mechanics of Engineering—Mechanical Engineering 6	5
French—French 6	3
Physical Laboratory—Physics 8	3
Military Science	1

Senior Year.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21	8
Iron Work—Shop Work 4	2
Chemical Journals—Chemistry 12	1
Steam Engineering—Mechanical Engineering 8	4
Industrial Electricity—Electrical Engineering 22	3

WINTER TERM.

	Exercises per week.
Chemical Laboratory and Thesis—Chemistry 20 or 21	8
Chemical Journals—Chemistry 12	1
Physical Chemistry—Chemistry 15	3
Industrial Electricity—Electrical Engineering 23	3
Chaucer to Wordsworth—English 4	2

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	6
Chemical Journals—Chemistry 12	1
Assaying—Chemistry 19	1
Physical Chemistry—Chemistry 16	2
Political Economy—Political Science 1	5
Wordsworth to Browning—English 5	2

GENERAL COURSE.

Sophomore Year.

FALL TERM.

	Exercises per week.
Invertebrate Zoölogy—Zoölogy 1	3
German—German 4	3
*Botany—Botany 9	3
*Chemical Laboratory—Chemistry 4	3
*Heat and Light—Physics 2 and 3, or Physics 10, 11 and 12	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 5	5
*Spanish—Spanish 1	3
Military Science	1

*Elect 10 exercises.

WINTER TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
*Sound and Electricity—Physics 4 and 5 or Physics 13	3
*History—History 2 or 5	3
*General Entomology—Zoölogy 4	3
*Botany—Botany 10	3
*Differential Calculus—Mathematics 6	5
*Free-hand Drawing—Drawing 33	2
*Spanish—Spanish 2	3
*Philosophy 1	2
Military Science	1

*Elect 13 exercises.

SPRING TERM.

	Exercises per week.
Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 5	3
*History—History 3 or 6	3
*Economic Entomology—Zoölogy 3	4
*Botany—Botany 11	3
*Chemical Laboratory—Chemistry 10	3
*Free-hand Drawing—Drawing 34	3
*Integral Calculus—Mathematics 7	5
*Philosophy 2	2
*Spanish—Spanish 3	3
Military Science	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science and English 7.

FALL TERM.

Psychology—Philosophy 3	3
French—French 4	3
American Political History—History 7	4
Chemistry of Plant Growth—Chemistry 6	3
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Least Squares and Precision of Measurements—Physics 6	3
Architectural Drawing—Drawing 35	3
Differential Equations—Mathematics 8	2
Spanish—Spanish 1	3
Vertebrate Anatomy and Physiology—Zoölogy 5	4
Military Science	1

WINTER TERM.

French—French 5	3
American Political History—History 8	3
English Literature—English 4	2
Philosophy of Education—Philosophy 4	3
Money and Banking, or International Law—Political Science 4 or 6	3
Chemistry of Food and Nutrition—Chemistry 7	2
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Physical Laboratory—Physics 7	3
Architectural Drawing—Drawing 36	2

	Exercises per week.
Quaternions—Mathematics 9	2
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17	3
Spanish—Spanish 2	3
Debating—English 7	1
Military Science	1

SPRING TERM.

French—French 6	3
Mineralogy—Geology 1	3
Logic, or Science of Thought—Philosophy 5 or 6	3
American Political History—History 9	2
Socialism or Finance—Political Science 5 or 7	3
English—English 5	2
Architectural Drawing—Drawing 37	3
Chemical Laboratory—Chemistry 10 or 11	3
Physical Laboratory—Physics 8	3
Spanish—Spanish 3	3
Debating—English 7	1
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9	3
Military Science	1

Senior Year.

Sixteen exercises required; all elective.

FALL TERM.

Laws of Business—Political Science 2 Constitutional Law—Political Science 3	5
Psychology—Philosophy 3	3
French—French 7	3
Literary Criticism—English 6	2
German—German 7	3
Chemical Laboratory—Chemistry 10 or 11	3
Advanced Zoölogy—Zoölogy 11	4
Advanced Botany—Botany 5 or 12	3
Elementary Geology—Geology 2	4
Architectural Drawing—Drawing 38	3
Spanish—Spanish 1	3
Industrial Electricity—Electrical Engineering 24	3
Thesis Work	2

WINTER TERM.

	Exercises per week.
Money and Banking, or International Law—Political Science 4 or 6	3
Philosophy 4	3
French—French 8	3
German—German 8	3
American Literature—English 8	3
Astronomy—Mathematics 10	4
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 12	3
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17	3
Advanced Botany—Botany 6 or 13	3
Architectural Drawing—Drawing 39	3
Spanish—Spanish 2	3
Thesis Work	1 or 2

SPRING TERM.

American Literature—English 9	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Mathematics 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Philosophy 5 or 6	3
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 13	3
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9	3
Advanced Botany—Botany 7 or 14	3
Architectural Drawing—Drawing 40	3
Spanish—Spanish 3	3
Thesis Work	1 or 2

HOURS OF STUDY.

FRESHMEN CLASS FOR

Term	Day	Section.	8-9	9-10	10-11
Fall	Mon.	I			Chemistry 1
		II			Chemistry 1
	Tues.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	Military Sci.
	Wed.	I	English 1		Chemistry 1
		II		English 1	Chemistry 1
	Thu.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	
	Fri.	I	English 1	History 1 or 4	
		II		English 1	Chemistry 1
	Sat.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	
Winter	Mon.	I			Chemistry 2
		II			Chemistry 2
	Tues.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	
	Wed.	I	English 2	History 2 or 5	
		II		English 2	Chemistry 2
	Thu.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	Military Sci.
	Fri.	I	English 2		Chemistry 2
		II		English 2	Chemistry 2
	Sat.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	
Spring	Mon.	I		Physics 9	Physics 1
		II		Mech. Engin. 1	Horticulture 1
	Tues.	I	German 3	French 3	Botany 8
		II	German 3	Drawing 21 or 22	Drawing 3
	Wed.	I	Military Sci.	Physics 9	Physics 1
		II	English 3		Horticulture 1
	Thu.	I	German 3	French 3	Botany 8
		II	German 3	Drawing 21 or 22	Drawing 3
	Fri.	I		English 3	Physics 1
		II	Military Sci.	Physics 9.	
	Sat.	I	German 3	French 3	Botany 8
		II	German 3	Drawing 21 or 22	Drawing 3

ALL FOUR YEARS' COURSES.

Day.	Section.	11-11.50	1.30-2.30	2.30-4
Mon.	I	Mathematics 1.....	Drawing 1.....	Drawing 19
	II	.....	Shop-work 1.	Shop-work 1
Tues.	I	Military Science....	Drawing 1.....	Drawing 19
	II	Mathematics 1.....	Shop-work 1.....	Shopwork 1
Wed.	I	.....	Mathematics 1....	.....
	II	History 1 or 4.....	.....	Mathematics 1
Thurs.	I	.....	Shop-work 1 or....	History 1 or 4
	II	Mathematics 1.....	Drawing 1.....	Drawing 19
Fri.	I	.....	Shop-work 1.....	Shop-work 1
	II	Mathematics 1.....	Drawing 1.....	Drawing 19
Sat.	I	.....	.....	.....
	II	Mathematics 1.....	.....	.....
Mon.	I	Mathematics 3.....	Drawing 2.....	Drawing 20
	II	.....	Shop-work 2.....	Shop-work 2
Tues.	I	.....	Drawing 2.....	Drawing 20
	II	Mathematics 3.....	Shop-work 2.....	Shop-work 2
Wed.	I	.....	Drawing 2 or.	Shop-work 2
	II	Mathematics 3.....	Shop-work 2 or....	Drawing 20
Thurs.	I	Military Science 2...	Shop-work 2 or....	History 2 or 5
	II	Mathematics 3.....	Drawing 2.....	Drawing 20
Fri.	I	.....	Shop-work 2.....	Shop-work 2
	II	History 2 or 5.....	Drawing 2.....	Drawing 20
Sat.	I	.....	.....	.....
	II	Mathematics 3.....	.....	.....
Mon.	I	History 3 or 6.....	Mathematics 4.....	Mathematics 4
	II	Chemistry 3.....	.....	.....
Tues.	I	Botany 8.....	Mathematics 4.....	Mathematics 4
	II	Drawing 3.....	.....	.....
Wed.	I	Chemistry 3.....	Mathematics 4.....	Mathematics 4
	II	Mech. Engin. 1.....	.....	.....
Thurs.	I	Botany 8.....	Shop-work 3.....	Shop-work 3
	II	Drawing 3.....	History 3 or 6.....	History 3 or 6
Fri.	I	Chemistry 3.....	Shop-work 3.....	Shop-work 3
	II	Mech. Engin. 1.....	History 3 or 6.....	History 3 or 6
Sat.	I	Botany 8.....	.....	.....
	II	Drawing 3.....	.....	.....

AGRICULTURE—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Zoölogy 1	Zoölogy 1	Botany 9	Botany 9	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 19	Zoölogy 1	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 19	Botany 9	Military Science	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	Physics 2 & 3	German 4	Agriculture 19	Agriculture 19
	Friday	Botany 4	Botany 4	Botany 9	Botany 9	Horticulture 2	Horticulture 2
	Saturday	.....	....	Physics 2 & 3	German 4	....	.....
Winter.	Monday	Zoölogy 4	Zoölogy 4	Horticulture 3	Horticulture 3	Chemistry 4	Chemistry 4
	Tuesday	.....	.....	Physics 4	German 5	Chemistry 4	Chemistry 4
	Wednesday	Botany 10	Horticulture 3	.....	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 4	Zoölogy 4	Physics 4	German 5	Horticulture 3	Horticulture 3
	Friday	Botany 10	Botany 10	Botany 10	Military Science	Zoölogy 4	Zoölogy 4
	Saturday	Botany 10	Botany 10	Physics 4	German 5	.....	.....
Spring..	Monday	Military Science	Horticulture 2	Horticulture 2	.....	Zoölogy 3	Zoölogy 3
	Tuesday	.....	Political Science 1	Agriculture 20	German 6	Horticulture 2	Horticulture 2
	Wednesday	.....	Political Science 1	Agriculture 20	Agriculture 20	Zoölogy 3	Zoölogy 3
	Thursday	.....	Political Science 1	Zoölogy 3	German 6	Botany 11	Botany 11
	Friday	Zoölogy 3	Political Science 1	Agriculture 20	.....	Botany 11	Botany 11
	Saturday	.....	Political Science 1	....	German 6	.....	....

AGRICULTURE—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall. ...	Monday	Dairying 1 & 3	Dairying 1 & 3	....	Horticulture 4	Agriculture 2	Agriculture 2
	Tuesday	Chemistry 6	Dairying 1 & 3	Dairying 1 & 3	Agriculture 2	Horticulture 4	Horticulture 4
	Wednesday	Chemistry 6	Dairying 1 & 3	Zoölogy 5	Agriculture 2	Horticulture 4	Horticulture 4
	Thursday	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	.....	....
	Friday	Chemistry 6	.....	Zoölogy 5	Dairying 1 & 3	Zoölogy 5	Zoölogy 5
	Saturday	Military Science	Zoölogy 5	Zoölogy 5	Zoölogy 5	.....	.....
Winter.	Monday	English 7	.....	.....	*Agriculture 11 *Zoölogy 6 or 17	Agriculture 3	Agriculture 3
	Tuesday	English 4	Agriculture 10	.....	Forestry 1	Agriculture 11	.....
	Wednesday	Chemistry 7	.....	Agriculture 3	*Agriculture 11 *Zoölogy 6 or 17	Forestry 1	Forestry 1
	Thursday	English 4	Agriculture 10	.....	Forestry 1	.....	.....
	Friday	Chemistry 7	.....	Agriculture 3	*Agriculture 1 *Zoölogy 6 or 17	Agriculture 10	Agriculture 10
	Saturday	Military Science	.....	.....	Geology 1	.....	....
Spring..	Monday	*Zoölogy 7 or 9	Geology 1	Geology 1	Agriculture 4	.....	.....
	Tuesday	Horticulture 5	Horticulture 5	English 5	Agriculture 4	.....	....
	Wednesday	Agriculture 13	Geology 1	Geology 1	English 7	.....	.....
	Thursday	*Agriculture 12 *Zoölogy 7 or 9	Horticulture 5	English 5	Agriculture 13	Agriculture 4	Agriculture 4
	Friday	*Agriculture 12	Geology 1	Geology 1	Agriculture 13	Horticulture 5	Horticulture 5
	Saturday	*Agriculture 12 *Zoölogy 7 or 9	.....	Agriculture 13	Agriculture 13	.....	.....

*Elective.

AGRICULTURE.—SENIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall	Monday	.....	*Forestry 2	.....	*Agriculture 14	Geology 2	Geology 2
	Tuesday	.....	.....	History 7	Horticulture 9	*Agriculture 14	Agriculture 15
	Wednesday	Geology 2	.....	*Forestry 2	Horticulture 9	*Agriculture 14	*Agriculture 14
	Thursday	.....	.....	History 7	Horticulture 9	*Forestry 2	*Forestry 2
	Friday	Geology 2	Geology 2	*Agriculture 14	.....	History 7	Agriculture 15
	Saturday	Geology 2	....	History 7	.....	.....	.....
Winter.	Monday	.....	.....	History 8	*Zoölogy 6 or 17	.....	....
	Tuesday	.....	Horticulture 6	Political Science 6	.....	*Agriculture 6	*Agriculture 6
	Wednesday	.....	*Agriculture 5	History 8	*Zoölogy 6 or 17	*Agriculture 6	*Agriculture 6
	Thursday	.....	Horticulture 6	Political Science 6	.....	*Agriculture 21	*Agriculture 21
	Friday	*Agriculture 21	*Agriculture 5	History 8	*Zoölogy 6 or 17	Horticulture 6	Horticulture 6
	Saturday	.....	*Agriculture 5	Political Science 6	.....	.....	.....
Spring..	Monday	*Zoölogy 7 or 9	.....	.....	.....	*Horticulture 7	*Horticulture 7
	Tuesday	*Forestry 3	Agriculture 17	Meteorology 1	.....	.....	.....
	Wednesday	*Horticulture 8	.....	.....	Agriculture 16	*Horticulture 7	*Horticulture 7
	Thursday	*Forestry 3 *Zoölogy 7 or 9	Agriculture 17	Meteorology 1	Agriculture 16	*Forestry 3	*Forestry 3
	Friday	*Horticulture 8	.....	*Horticulture 7	Agriculture 16	.....	....
	Saturday	*Zoölogy 7 or 9	Agriculture 17	Meteorology 1	....	.....	.....

*Elective.

ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.50–2.30	2.30–4
Fall	Monday	.....	Drawing 23	Drawing 23	Drawing 23	I Chemistry 5 II Shop-work 4	I Chemistry 5 II Shop-work 4
	Tuesday	Mathematics 5	Military Science	Physics 2 and 3	German 4	II Shop-work 4 I Chemistry 5	II Shop-work 4 I Chemistry 5
	Wednesday	Mathematics 5	Drawing 23	Drawing 23	Drawing 23	II Chemistry 5 I Shop-work 4	II Chemistry 5 I Shop-work 4
	Thursday	Mathematics 5	Mechanical Eng. 2	Physics 2 and 3	German 4	.....	.....
	Friday	Mathematics 5	.....	.....	I Shop-work 4	II Chemistry 5 I Shop-work 4	II Chemistry 5 I Shop-work 4
	Saturday	Mathematics 5	Mechanical Eng. 2	Physics 2 and 3	German 4	.....	.....
Winter.	Monday	.....	Drawing 25	Drawing 25	Drawing 25	I Chemistry 5 II Shop-work 5	I Chemistry 5 II Shop-work 5
	Tuesday	Mathematics 6	Mechanical Eng. 3	Physics 4 and 5	German 5	II Shop-work 5 I Chemistry 5	II Shop-work 5 I Chemistry 5
	Wednesday	Mathematics 6	Drawing 5	Drawing 5	Drawing 5	II Chemistry 5 I Shop-work 5	II Chemistry I Shop-work 5
	Thursday	Mathematics 6	Mechanical Eng. 3	Physics 4 and 5	German 5	....	.....
	Friday	Mathematics 6	.....	.....	I Shop-work 5	II Chemistry 5 I Shop-work 5	II Chemistry 5 I Shop-work 5
	Saturday	Mathematics 6	Military Science	Physics 4 and 5	German 5	.....	.....
Spring..	Monday	.....	.....	.....	Mechanical Eng. 22	Drawing 26	Drawing 26
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Drawing 26	Drawing 26
	Wednesday	Mathematics 7	Mechanical Eng. 22	....	.....	Drawing 26	Drawing 26
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Drawing 26	Drawing 26
	Friday	Mathematics 7	.....	....	.....	Drawing 26	Drawing 26
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

ELECTRICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1 30-2.3	2.30-4
Fall.....	Monday	.....	Electr. Engin. 1	Mech. Engin. 7	Electr. Engin. 4	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mech. Engin. 8	Physics 6	Physics 6
	Wednesday	Electr. Engin. 1	Mech. Engin. 7	.....	Electr. Engin. 4	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mech. Engin. 8	.....	.....
	Friday	Electr. Engin. 1	Mech. Engin. 4	Electr. Engin. 4	Mech. Engin 8	.....	.....
	Saturday	Military Science	Mech. Engin. 4	.....	Mech. Engin. 8	.....	.....
Winter..	Monday	English 7	Electr. Engin. 2	Mech. Engin. 5	Electr. Engin. 5	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Drawing 28	Mech. Engin. 9	Physics 7	Physics 7
	Wednesday	Electr. Engin. 2	Mech. Engin. 5	.....	Electr. Engin. 5	Physics 7	Physics 7
	Thursday	Electr. Engin. 2	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
	Friday	Drawing 28	Drawing 28	Drawing 28	Electr. Engin. 5	.....	.....
	Saturday	Military Science	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
Spring..	Monday	Drawing 29	Drawing 29	Drawing 29	Electr. Engin. 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 5	.....	Mech. Engin. 10	Electr. Engin. 3	Physics 8	Physics 8
	Wednesday	Drawing 29	Drawing 29	Drawing 29	Electr. Engin. 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 5	.....	Mech. Engin. 10	Electr. Engin. 3	.....	.....
	Friday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	.....	.....	.....
	Saturday	Mech. Engin. 5	Electr. Engin. 3	Mech. Engin. 10	Military Science	.....	.....

ELECTRICAL ENGINEERING—SENIOR CLASS.

TERM	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Mechanical Eng. 12	Mechanical Eng. 11	....	Electr. Eng. 15	Electr. Eng. 15
	Tuesday	Mechanical Eng. 11	Electrical Eng. 7	Electrical Eng. 10, 11 and 12	Electrical Eng. 7	....	.....
	Wednesday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	.....	Electr. Eng. 15	Electr. Eng. 15
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	Electrical Eng. 10, 11 and 12	Electrical Eng. 10, 11 and 12	Mech. Eng. 14	Mech. Eng. 14
	Friday	.....	Electrical Eng. 7	.....	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	.....	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
Winter..	Monday	.....	.....	Electrical Eng. 8	Mechanical Eng. 17	Electr. Eng. 16	Electr. Eng. 16
	Tuesday	Electrical Eng. 8	.....	.....	Electrical Eng. 14	Electr. Eng. 16	Electr. Eng. 16
	Wednesday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	.....	Electrical Eng. 8	.....	Electrical Eng. 14	Mech. Eng. 15	Mech. Eng. 15
	Friday	....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	Electrical Eng. 13	.....	.....	Electrical Eng. 14	.....	.....
Spring..	Monday	Electrical Eng. 13	Electrical Eng. 9	.....	Mechanical Eng. 18	Mech. Eng 16	Mech. Eng. 16
	Tuesday	Political Science 1	.....	.....	.....	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	Political Science 1	Thesis	Thesis	Mechanical Eng. 18	Electr. Eng. 17	Electr. Eng. 17
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Electr. Eng. 17	Electr. Eng. 17
	Friday	Political Science 1	.....	.....	.....	Thesis	Thesis
	Saturday	Political Science 1	Mechanical Eng. 18	.....	Electrical Eng. 9	.....	.....

MECHANICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Electrical Eng. 1	Mechanical Eng. 7	.....	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mechanical Eng. 8	Physics 6	Physics 6
	Wednesday	Electrical Eng. 1	Mechanical Eng. 7	.....	....	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mechanical Eng. 8	Shop-work 6	Shop-work 6
	Friday	Electrical Eng. 1	Mechanical Eng. 4	Mechanical Eng. 8	Mechanical Eng. 8	Shop-work 6	Shop-work 6
	Saturday	Military Science	Mechanical Eng. 4	.....	Mechanical Eng. 8	.....	.....
Winter.	Monday	English 7	Electrical Eng. 2	Mechanical Eng. 5	.....	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Drawing 28	Mechanical Eng. 9	Physics 7	Physics 7
	Wednesday	Electrical Eng. 2	Mechanical Eng. 5	.....	.....	Physics 7	Physics 7
	Thursday	Electrical Eng. 2	Mechanical Eng. 5	.....	Mechanical Eng. 9	Shop-work 7	Shop-work 7
	Friday	Drawing 28	Drawing 28	Drawing 28	.....	Shop-work 7	Shop-work 7
	Saturday	Military Science	Mechanical Eng. 5	.....	Mechanical Eng. 9	....	.....
Spring..	Monday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8	Physics 8
	Tuesday	Mechanical Eng. 5	....	Mechanical Eng. 10	Electrical Eng. 3	Physics 8	Physics 8
	Wednesday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8	Physics 8
	Thursday	Mechanical Eng. 5	.....	Mechanical Eng. 10	Electrical Eng. 3	Shop-work 8	Shop-work 8
	Friday	Mechanical Eng. 5	.....	Mechanical Eng. 10	.....	Shop-work 8	Shop-work 8
	Saturday	Mechanical Eng. 5	Electrical Eng. 3	Mechanical Eng. 10	Military Science	.....	.....

MECHANICAL ENGINEERING.—SENIOR CLASS.

TERM	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Electrical Eng. 20 and 21	.....	Mechanical Eng. 12	Mechanical Eng. 11	Shop-work 9	Shop-work 9
	Tuesday	Mechanical Eng. 11	Shop-work 9	Shop-work 9	Shop-work 9	.....	....
	Wednesday	Drawing 30	Mechanical Eng. 12	Mechanical Eng. 11	Electrical Eng. 20	Drawing 30	Drawing 30
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	Drawing 30	Electrical Eng. 20 and 21	Mech. Eng. 14	Mech. Eng. 14
	Friday	Drawing 30	Drawing 30	Drawing 30	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	Drawing 30	Drawing 30	Drawing 30	.....	.....	.....
Winter.	Monday	.....	.....	Mechanical Eng. 20	Mechanical Eng. 17	Thesis	Thesis
	Tuesday	Drawing 31	.....	.....	Mechanical Eng. 13	Thesis	Thesis
	Wednesday	Drawing 31	.....	Mechanical Eng. 20	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	Drawing 31	Drawing 31	Drawing 31	Mechanical Eng. 13	Mech. Eng. 15	Mech. Eng. 15
	Friday	Shop-work 10	Shop-work 10	Shop-work 10	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	.....	Mechanical Eng. 20	Mechanical Eng. 9	Mechanical Eng. 13	.....	.....
Spring..	Monday	.....	Mechanical Eng. 18	.....	Mechanical Eng. 18	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	Drawing 32	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
	Thursday	Drawing 32	Political Science 1	.....	.....	Thesis	Thesis
	Friday	Political Science 1	Drawing 32	Drawing 32	Mechanical Eng. 18	Thesis	Thesis
	Saturday	Drawing 32	Political Science 1	.....	.....	.....	.....

CHEMICAL ENGINEERING.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	....	Drawing 24	Drawing 24	Drawing 24	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 5	....	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Mathematics 5	Drawing 24	Drawing 24	Drawing 24	Chemistry 4	Chemistry 4
	Thursday	Mathematics 5	Military Science	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Friday	Mathematics 5	.....	.....	....	Chemistry 4	Chemistry 4
	Saturday	Mathematics 5	.....	Physics 2 & 3	German 4	.....	.....
Winter.	Monday	.....	.....	.....	.....	Chemistry 10	Chemistry 10
	Tuesday	Mathematics 6	.....	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Wednesday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Thursday	Mathematics 6	Military Science	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Friday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Saturday	Mathematics 6	.....	Physics 4 & 5	German 5	.....	.....
Spring..	Monday	.....	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Chemistry 11	Chemistry 11
	Wednesday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Chemistry 8	Chemistry 8
	Friday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 8	Chemistry 8
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	....

CHEMICAL ENGINEERING.—JUNIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall	Monday	Military Science	Military Science	Mech. Engin. 7	French 4	Chemistry 9	Chemistry 9
	Tuesday	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Wednesday	Chemistry 6	Mech. Engin. 7	.....	French 4	Chemistry 9	Chemistry 9
	Thursday	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Friday	Chemistry 6	Mech. Engin. 4	.....	French 4	Chemistry 11	Chemistry 11
	Saturday	.....	Mech. Engin. 4	.....	.....	.....	.....
Winter	Monday	English 7	.....	Mech. Engin. 5	French 5	Physics 7	Physics 7
	Tuesday	Chemistry 11	Chemistry 11	Chemistry 13	.....	Physics 7	Physics 7
	Wednesday	.....	Mech. Engin. 5	.....	French 5	Physics 7	Physics 7
	Thursday	.....	Mech. Engin. 5	Chemistry 13	.....	Chemistry 11	Chemistry 11
	Friday	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11	Chemistry 11
	Saturday	Military Science	Mech. Engin. 5	.....	.....	.....	.....
Spring	Monday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 6	.....	English 5	Chemistry 14	Physics 8	Physics 8
	Wednesday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 6	.....	English 5	Chemistry 14	Chemistry 11	Chemistry 11
	Friday	Mech. Engin. 6	.....	.....	French 6	Chemistry 11	Chemistry 11
	Saturday	Mech. Engin. 6	.....	.....	Military Sci.	.....	.....

CHEMICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Chemistry 11 or 21	Chemistry 11 or 21	.....	Electrical Eng. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Tuesday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Wednesday	Shop-work 4	Shop-work 4	Shop-work 4	Shop-work 4	Elec. Eng. 22	Elec. Eng. 22
	Thursday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Friday	Electrical Eng. 22	Chemistry 11 or 21	Chemistry 11 or 21	Mechanical Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Saturday	....	Chemistry 12	.....	Mechanical Eng. 8	.....	.....
Winter.	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Electrical Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Saturday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 12	.....	.....
Spring..	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	.....	Political Science 1	.....	.....	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	.....	Political Science 1	Chemistry 19	Chemistry 19	Chemistry 19	Chemistry 19
	Saturday	.....	Political Science 1	.....	Chemistry 12	.....	....

GENERAL COURSE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-4	
Fall.....	Monday	Zoölogy 1	Zoölogy 1	Botany 9	....	Spanish 1	Chemistry 4
	Tuesday	Mathematics 5	Zoölogy 1	Physics 2 and 3	German 4	Spanish 1	Chemistry 4
	Wednesday	Mathematics 5	Botany 9	Military Science	History 1 or 4	Spanish 1	Chemistry 4
	Thursday	Mathematics 5 Zoölogy 1	Zoölogy 1	Physics 2 and 3	German 4	History 1 or 4	
	Friday	Mathematics 5	History 1 or 4	History 1 or 4 Botany 9	History 1 or 4 Botany 9	....	
	Saturday	Mathematics 5	.....	Physics 2 and 3	German 4	.....	
Winter...	Monday	Zoölogy 4	Zoölogy 4	Physics 13	Philosophy 1	Spanish 2	Chemistry 4
	Tuesday	Mathematics 6	Military Science	Physics 4 and 5	German 5	Spanish 2	Chemistry 4
	Wednesday	Mathematics 6 Drawing 33 Botany 10	History 2 or 5 Drawing 33	Physics 13	Philosophy 1	Spanish 2	Chemistry 4
	Thursday	Mathematics 6	Zoölogy 4	Physics 4 and 5	German 5	History 2 or 5	
	Friday	Mathematics 6 Drawing 33 Botany 10	Drawing 33 Botany 7	Botany 10	History 2 or 5	Zoölogy 4	
	Saturday	Mathematics 6 Botany 10	Physics 13 Botany 10	Physics 4 and 5	German 5	....	
Spring...	Monday	Military Science	Drawing 34	Drawing 34	History 3 or 6	Zoölogy 3 Spanish 3	Chemistry 10
	Tuesday	Mathematics 7	Political Science 1	Physics 5	German 6	Chemistry 10 Spanish 3	Botany 11
	Wednesday	Mathematics 7	Political Science 1	Drawing 12 Philosophy 5	Drawing 12	Chemistry 10 Spanish 3	Zoölogy 3
	Thursday	Mathematics 7	Political Science 1	Zoölogy 3 Physics 5	German 6	History 3 or 6	Botany 11
	Friday	Mathematics 7 Zoölogy 3	Political Science 1	Philosophy 5 Drawing 34	Drawing 34	History 3 or 6	
	Saturday	Mathematics 7	Political Science 1	Physics 5	German 6	.....	

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-4	
Fall.....	Monday	.....	.....	.....	French 4	Chemistry 4 or 10 Spanish 1	Physics 6
	Tuesday	Drawing 35 Chemistry 6	Drawing 35	History 7	Philosophy 3	Chemistry 4 or 10 Spanish 1	Physics 6
	Wednesday	Chemistry 6	Mathematics 8	Zoölogy 5	French 4	Chemistry 4 or 10 Spanish 1	Physics 6
	Thursday	Military Science 2	.....	History 7	Philosophy 3	Drawing 35	Drawing 35
	Friday	Drawing 35 Chemistry 6	Drawing 35 Mathematics 8	Zoölogy 5 History 7	French 4 Philosophy 3	History 7	Zoölogy 5
	Saturday	.....	Zoölogy 5	Zoölogy 5	Zoölogy 5	.....	.....
Winter...	Monday	English 7	.....	History 8	French 5 Zoölogy 6 or 17	Chemistry 4 or 11 Spanish 2	Physics 7
	Tuesday	English 4	Philosophy 4	Political Science 4 or 6	.....	Chemistry 4 or 11 Spanish 2	Physics 7
	Wednesday	Chemistry 7	Mathematics 9	History 8	French 5 Zoölogy 6 or 17	Chemistry 4 or 11 Spanish 2	Physics 7
	Thursday	English 4	Philosophy 4	Political Science 4 or 6	....	Drawing 36	.....
	Friday	Chemistry 7	Mathematics 9	History 8	French 5 Zoölogy 6 or 17	Drawing 36	.....
	Saturday	Military Science	Philosophy 4	Political Science 4 or 6	....	.....	.....
Spring...	Monday	Zoölogy 7 or 9	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Physics 8
	Tuesday	Philosophy 10	Military Science	English 5	Political Science 5 or 7	Chemistry 10 or 11 Spanish 3	Physics 8
	Wednesday	.....	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Physics 8
	Thursday	Philosophy 10 Zoölogy 7 or 9	.....	English 5	Political Science 5 or 7	Drawing 37	History 9
	Friday	....	Geology 1	Geology 1	French 6	Drawing 37	.....
	Saturday	Philosophy 10 Zoölogy 7 or 9	.....	Drawing 37 History 9	Political Science 5 or 7	.....	.....

GENERAL COURSE.—

Term	Day	8-9	9-10	10-11
Fall	Monday			French 7
	Tuesday.	Elec. Eng. 24.	Political Sci. 2 & 3	Phil. 11
	Wednesday.	Geology 2 German 7	Political Sci. 2 & 3	French 7
	Thursday	Elec. Eng. 24	Political Sci. 2 & 3	Phil. 11.
	Friday	German 7 Geology 2	Geology 2	French 7
	Saturday	Geology 2	Political Sci. 2 & 3	Phil. 11
Winter.	Monday.		Mathematics 6	French 8
	Tuesday		Philosophy 4	Political Sci. 4 or 6
	Wednesday	German 8.	Mathematics 10	French 8
	Thursday		Philosophy 4	Political Sci. 4 or 6
	Friday	German 8	Mathematics 10	French 8
	Saturday		Philosophy 4	Political Sci. 4 or 6
Spring	Monday	Zoölogy 7 or 9	Mathematics 11	French 9
	Tuesday	Philosophy 10		Meteorology 1
	Wednesday	German 9	Mathematics 11	French 9
	Thursday	Zoölogy 7 or 9 Philosophy 10		Meteorology 1
	Friday	German 9	Mathematics 11	French 9
	Saturday	Zoölogy 7 or 9 Philosophy 10		Meteorology 1

SENIOR CLASS.

Day	11–11.50	1.30–4	
Monday.....	.....	Drawing 38	Zoölogy 11
	.....	Botany 5	Geology 2
	.....	Spanish 1	Chemistry 10 or 11
Tuesday.....	Philosophy 3	Zoölogy 11	Chemistry 10 or 11
	.....	Spanish 1	Drawing 38
	.....	Botany 5	
Wednesday	.....	Zoölogy 11	Chemistry 10 or 11
	.....	Spanish 1	Drawing 38
	.....	Botany 5	
Thursday...	Philosophy 3	Zoölogy 11	
Friday.....	Political Science 2 or 3	.....	
Saturday....	Philosophy 3	.....	
	Elec. Eng. 24	.....	
Monday.....	Zoölogy 6 or 17	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Tuesday....	English 8	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Wednesday	Zoölogy 6 or 17	Chemistry 11	Zoölogy 12
	.....	Botany 6	Drawing 39
	.....	Spanish 2	
Thursday...	English 8	.....	
Friday.....	Zoölogy 6 or 17	Mathematics 6	
Saturday....	English 8	.....	
Monday.....	.....	Chemistry 11	Zoölogy 13
	.....	Botany 7	Drawing 40
	.....	Spanish 3	
Tuesday....	Political Science 5 or 7	Spanish 3	English 9
	.....	Zoölogy 13	Chemistry 11
	.....	Drawing 40	Botany 7
Wednesday	English 9	Spanish 3	Chemistry 11
	.....	Zoölogy 13	Botany 7
	.....	Drawing 40	
Thursday...	Political Science 5 or 7	.....	
Friday.....	English 9	.....	
Saturday....	Political Science 5 or 7	.....	

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the Legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four years' collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States."

For those who do not bring certificates to show their proficiency in these subjects an entrance examination in geography, arithmetic, English and United States history will be given on Tuesday afternoon and Wednesday morning of the opening week of school. A specimen list of the questions for this examination will be found on pages 181–183.

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Mathematics 12	2
English 11 and 1	5
Botany 1	3
Zoölogy 14	3
Horticulture 1	1
Agriculture 1	3
Agriculture 18	3
Military Science	1

WINTER TERM.

Mathematics 13	3
English 2	2
Shop Work 12	2
Zoölogy 15	5
Botany 2	3
Horticulture 3	3
Military Science	1

SPRING TERM.

English 3	1
Physics 14	3
Botany 3	3
Dairying 7 and 3	6
Zoölogy 3	4
Chemistry 22	3
Military Science	1

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Dairying 4	3
Botany 4	3
Horticulture 2	1
Horticulture 4	3
Physics 15	3
Agriculture 19	3

	Exercises per week.
Agriculture 2	3
Military Science	1

WINTER TERM.

*Agriculture 21	2
*Dairying 2	3
Agriculture 3	3
Agriculture 5	3
Agriculture 8	3
Forestry 1	3
Agriculture 11	4
Military Science	1

SPRING TERM.

Shop Work 13	2
Horticulture 2	2
Horticulture 5	3
Agriculture 12	3
Agriculture 4	3
Agriculture 13	4
Agriculture 20	3
Military Science	1

*Elective.

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday		Agriculture 1	Agriculture 18		Horticulture 1	Horticulture
Tuesday	English 11	Mathematics 12	Military Science	Agriculture 18	Botany 1	Botany 1
Wednesday	English 1	Agriculture 1	Zoölogy 14	Zoölogy 14	Botany 1	Botany 1
Thursday	English 11	Botany 1	Agriculture 1	Zoölogy 14	Zoölogy 14	Zoölogy 14
Friday	English 1		Agriculture 1	Agriculture 1	Agriculture 18	Agriculture 18
Saturday	English 11	Mathematics 12				

WINTER TERM.

Monday		Shop-work 12	Shop-work 12	Shop-work 12	Zoölogy 15	Zoölogy 15
Tuesday	Zoölogy 15	Horticulture 3	Zoölogy 15	Zoölogy 15	Botany 2	Botany 2
Wednesday	English 2	Mathematics 13			Horticulture 3	Horticulture 3
Thursday		Mathematics 13	Military Science		Zoölogy 15	Zoölogy 15
Friday	English 2	Shop-work 12	Shop-work 12	Shop-work 12	Horticulture 3	Horticulture 3
Saturday	Botany 2	Mathematics 13	Botany 2	Botany 2		

SPRING TERM.

Monday	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3		Zoölogy 3	Zoölogy 3
Tuesday	Dairying 7 & 3		Physics 14	Chemistry 22	Botany 3	Botany 3
Wednesday	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Physics 14	Zoölogy 3	Zoölogy 3
Thursday	Dairying 7 & 3	Dairying 7 & 3	Zoölogy 3	Chemistry 22	Botany 3	Botany 3
Friday	Military Science	English 3		Physics 14		
Saturday	Dairying 7 & 3		Botany 3	Chemistry 22		

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR.—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday.....	Dairying 4	Dairying 4	Physics 15	Horticulture 4	Agriculture 2	Agriculture 2
Tuesday	Agriculture 19	Botany	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday ..	Agriculture 19	Physics 15	Military Science	Agriculture 2	Horticulture 4	Horticulture 4
Thursday.....	Dairying 4	Dairying 4	Botany 4	Physics 15	Agriculture 19	Agriculture 19
Friday	Botany 4	Botany 4	.....	.....	Horticulture 2	Horticulture 2
Saturday.....	Dairying 4	Dairying 4	Dairying 4	.....	.....	.....

WINTER TERM.

Monday.....	Dairying 2	Dairying 2	Dairying 2	Agriculture 11	Agriculture 3	Agriculture 3
Tuesday	.....	Agriculture 10	Military Science	Forestry 1	Agriculture 11	.....
Wednesday ..	.....	Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday.....	.....	Agriculture 10	Dairying 2	Forestry 1	.....	.....
Friday	.....	Agriculture 5	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
Saturday.....	.....	Agriculture 5	Dairying 2	Dairying 2	.....	.....

SPRING TERM.

Monday.....	Military Science	Horticulture 2	Horticulture 2	Agriculture 4	Shop-work 13	Shop-work 13
Tuesday	Horticulture 5	Horticulture 5	Agriculture 20	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday...	Agriculture 13	.....	Agriculture 20	Agriculture 20	Shop-work 13	Shop-work 13
Thursday.....	Agriculture 12	Horticulture 5	.....	Agriculture 13	Agriculture 4	Agriculture 4
Friday	Agriculture 12	.....	Agriculture 20	Agriculture 13	Horticulture 5	Horticulture 5
Saturday.....	Agriculture 12	.....	Agriculture 13	Agriculture 13	.....	.....

TEN WEEKS' COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 9, and continuing until Friday, March 16, 1906.

No entrance examinations are required for this course, but students taking it must possess a good common school education. The course is especially desirable for students of mature years who can find the time to come from the farm during the winter and study some of the principles of agricultural science.

The courses of study offered are dairying, stock feeding, principles of breeding, veterinary elements, poultry, breeds of dairy cattle, greenhouse management, forestry, soil physics, botany and entomology, together with practical work in the creamery, forge, wood and machine shops and greenhouses.

Since the hours of study for the above named courses are scheduled on other pages of the catalogue, they are not repeated here in a separate schedule. Those contemplating taking the course should decide what studies they wish to pursue and then make out a schedule of hours for themselves.

A fee of $5 is charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, 10 weeks at $4	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office in Thompson Hall on Tuesday, January 9, 1906.

TEN WEEKS' COURSE IN DAIRYING OR DAIRY SCHOOL.

The eleventh annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 9, and continue 10 weeks. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room and board for 10 weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

For further information and descriptive circular, address New Hampshire College of Agriculture and the Mechanic Arts, Durham, N. H.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for

testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCTS.

Instructor Ivan C. Weld.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

The student will study the construction, operation and care of the various appliances used in the dairy or creamery, and will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed and efficiency. Plans of dairy and creamery buildings, with estimates for building will be required.

MILK TESTING.

Instructor Ivan C. Weld.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law and the value of the test in the successful management of the dairy herd

has created a demand for practical training. The course will include lectures and recitations on the principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of 10 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Instructor Ivan C. Weld.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

BOILERS AND ENGINES.

Assistant Professor E. H. Hancock.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction will also be given in pipe cutting and fitting and other work incidental to the management of a steam plant.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding as exhibited through the laws of heredity, variation and selection; methods of breeding, including a discussion of in-breeding, cross-breeding and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive and milk-producing organs, the common diseases, the causes and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of $15,000.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1905.

On Commencement Day, June 7, 1905, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Harold Nims Knight, Marlborough.
Fred Silver Putney, Hopkinton.
John Leslie Randall, Lee.
Elmer Seth Savage, Lancaster.
Frank Alvin Tinkham, Grafton.

IN CHEMISTRY.

Cleon Orestes Dodge, Sunapee.
Fred Harvey Heath, Warner.
William Orrin Robinson, Marlborough.

IN ELECTRICAL ENGINEERING.

John Henry Chesley, Rockingham.
Harry Linwood Hayes, Exeter.
Joseph Wesley Moreton, Medford, Mass.
Orlo Dudley Mudgett, Gilmanton.
Horace James Pettee, Durham.

IN GENERAL COURSE.

Harry Union Russell, West Derry.
Castine Caroline Swanson, Cambridge, Mass.

UNCLASSIFIED.

Silas Bryden Hayden, South Natick, Mass.
Warren Chauncey Hayes, Durham.
Arthur Mahlon Pike, Dover.

Certificates.

Certificates from the Two Years' Course in Agriculture were awarded to—

Arthur Garfield Dunn, Harrisville.
Henry Newton Gowing, Dublin.

HONORARY DEGREES.

The degree of M. S. was conferred upon—

His Excellency John McLane, Governor of New Hampshire, Trustee New Hampshire College, 1905–1907.

Edward Woods, Esq., of Bath, Trustee, 1893–1896.

Prof. Jeremiah W. Sanborn of Gilmanton, Trustee, 1896–1899.

James E. Shepard, Esq., of New London, Trustee, 1899–1902.

PRIZE RECORD FOR 1904.

BAILEY PRIZE—$10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Cleon Orestes Dodge.

ERSKINE MASON MEMORIAL PRIZE.

Fred Silver Putney.

SENIOR SHOWING SPECIAL APTITUDE FOR MILITARY SERVICE.

Name Reported to Military Secretary of the Army and to Adjutant-General of the State.

Elmer Seth Savage.

WINNER OF INDIVIDUAL PRIZE DRILL.

For Excellence in Manual of Arms.

Francis Ward Woodman.

HONORABLE MENTION.

Merritt Chase Huse.

PRIZE SWORD.

For Excellence in Handling a Company and Battalion at Drill.

Ernest Luther Converse.

Valentine Smith Scholarships are held by—

John D. Clark, '06.
J. Glenn Powers, '07.
W. W. Kirkpatrick, '08.
William S. Campbell, '09.

ROSTER OF BATTALION.

For 1905–1906.

COMMANDANT.

First Lieut. William E. Hunt, Eighth U. S. Infantry.

CADET OFFICERS.

Maj. Willis C. Campbell.
First. Lieut. and Adjt. W. G. Murchie.
Second Lieut. and Q. M. J. G. Powers.
Sergt. Maj. F. D. Lane.
Q. M. Sergt. J. H. Priest.

Company A.	Company B.
Capt. N. S. Franklin.	Capt. E. L. Converse.
1st Lieut. E. J. Roberts.	1st Lieut. A. Broggini.
2d Lieut. F. W. Randall.	2d Lieut. C. A. Dodge.

FIRST SERGEANTS.

L. D. Batchelor.	H. E. Ingham.

SERGEANTS.

A. J. Woodward.	F. W. Woodman
M. C. Huse.	H. D. Walker.
B. C. Noyes.	L. A. Carlisle.
G. D. Neville.	R. E. Wadleigh

CORPORALS.

A. M. Batchelder.	P. W. Goodsoe.
D. F. Smalley.	W. W. Evans.
C. F. Cone.	A. H. Barton.
F. Clough.	E. R. Fellows.
W. L. Adams.	H. E. Batchelder.
G. A. Perley.	S. F. Hill.

MUSICIANS.

P. R. Berry.	M. G. Buss.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

POST-GRADUATE.

Name.	Residence.	Room.
Randall, John Leslie	*Lee.*	Lee.
Robinson, William Orrin	*Marlborough.*	Zeta House.

SENIORS.

Barnes, Stuart Kenrick *c*	*Walpole.*	Delta Hall.
Batchelder, Charles S. *a*	*South Hampton.*	Nesmith Hall.
Campbell, Willis Cassius *u*	*West Windham.*	Kappa Sigma House.
Clark, John Dustin *g*	*Nashua.*	Kappa Sigma House.
Clement, Clarence Elbert *a*	*Derry.*	Mr. Manley's.
Converse, Ernest Luther *g*	*Amherst.*	Delta Hall.
Franklin, Neil Starr *e e*	*Bernardston, Mass.*	Kappa Sigma House.
Gooch, William Safford *e e*	*Exeter.*	Exeter.
Gowen, Ralph Edward *m e*	*Stratham.*	Delta Hall.
Roberts, Edwin Jay *c*	*Laconia.*	Delta Hall.
Swain, Roy Vance *m e*	*Barrington.*	Delta Hall.

JUNIORS.

Batchelor, Leon Dexter *a*	*West Upton, Mass.*	Kappa Sigma House.
Berry, Philip Ray *e*	*Alton.*	Miss Berry's.
Broggini, Andrew *e*	*Concord.*	Kappa Sigma House.
Dodge, Carl Austin *c*	*New Boston.*	Kappa Sigma House.
Fuller, Carl Tilson *c*	*Nashua.*	Zeta House.
Handy, Waylon Lester *a*	*Swanzey.*	
Hardy, Edwin Davis *m e*	*Nashua.*	Zeta House.
Ingham, Harry Edward *e*	*Nashua.*	Kappa Sigma House.
Jenness, Cyrus Fremont *a*	*Gonic.*	Kappa Sigma House.
Johnson, Allen Montague *e*	*Nashua.*	Zeta House.
Lane, Frank Davis *m e*	*Manchester.*	Kappa Sigma House.
Littlefield, Ralph Albion *a*	*Portsmouth.*	Mrs. H. Mathes'.
Murchie, William Ewart *e*	*Concord.*	Kappa Sigma House.
Noyes, Bernard C. *a*	*Landaff.*	Thompson Hall.
Powers, John Glenn *a*	*Concord.*	Mr. Schoonmaker's.
Purrington, Wallace Fuller *c*	*South Yarmouth, Mass.*	Zeta House.

Name.	Residence.	Room.
Randall, Frank Wiggin *e*	*Portsmouth.*	Delta Hall.
Stockwell, Franklin Emmons *a*	*Lancaster.*	Zeta House.
Townsend, Ellice Storrs *g*	*Lebanon.*	Miss Berry's.
Tuttle, Charles Leo *e e*	*Exeter.*	Exeter.
Watson, Lucia Soule *g*	*Durham.*	Mr. D. W. Watson's.
Woodward, Arthur Jason *e*	*Lancaster.*	Delta Hall.

SOPHOMORES.

Adams, Waldo Lawrence *c*	*Townsend, Mass.*	Mrs. Sanders'.
Atwell, Robert King *c*	*Portsmouth.*	Pettee Block.
Barton, Arthur Hosea *e*	*Newport.*	Prof. Parson's.
Batchelder, Arthur Milliken *e*	*Suncook*	Kappa Sigma House.
Batchelder, Henry Edward *e*	*Exeter.*	Exeter.
Buss, Minot Giles *e*	*Wilton.*	Mr. Schoonmaker's.
Carlisle, Lawrence Andrew *a*	*Exeter.*	Exeter.
Cash, James Dennis *c*	*Massabesic.*	Zeta House.
Chesley, Mary Abbie *g*	*Lee.*	Lee.
Clough, Francis *e*	*Contoocook.*	Kappa Sigma House.
Cone, Charles Francis *e*	*Nashua.*	Zeta House.
Cory, Merton Maine *e*	*Nashua.*	Pettee Block.
Croghan, John Timothy *e*	*Concord.*	Kappa Sigma House.
DeMeritt, Katharine *g*	*Durham.*	Mr. Albert DeMeritt's.
Dickey, Harold Hurst *g*	*Manchester.*	Kappa Sigma House.
Evans, Walter Woods *c*	*East Kingston.*	East Kingston.
Farwell, Oren Lovell *a*	*Harrisville.*	Delta Hall.
Fellows, Ernest Roslyn *e*	*Exeter.*	Exeter.
French, Harry Fifield *c*	*Plymouth.*	Kappa Sigma House.
Goodsoe, Paul Wesley *e*	*Stratham.*	Delta Hall.
Hill, Stanley Fisk *e*	*Nashua.*	Delta Hall.
Huse, Merritt Chase *e*	*Concord.*	Pettee Block.
Kirkpatrick, William R. *e*	*Nashua.*	Delta Hall.
Neville, George Duncan *e*	*New Boston.*	Pettee Block.
O'Connor, John Joseph *e*	*Portsmouth.*	Zeta House.
Page, John Caleb *g*	*Dover.*	Pettee Block.
Perley, George Arthur *c*	*Goffstown.*	Prof. Pettee's.
Pettee, Sarah Elizabeth *g*	*Durham.*	Prof. Pettee's.
Sanborn, Moses Harmon *a*	*Fremont.*	Miss Berry's.
Smalley, Dean Fred *e*	*Walpole.*	Delta Hall.
Tarbell, Carl Brown *e*	*Milton.*	Pettee Block.
Wadleigh, Ray Emery *e*	*Kensington.*	Kappa Sigma House.
Waite, George Lyman *a*	*Dunbarton.*	Zeta House.
Walker, Harold Duncan *e*	*Kittery, Me.*	Zeta House.
Woodman, Francis Ward *c*	*Milford.*	Mr. Burnham's.

FRESHMEN.

Name.	Residence.	Room.
Ackerman, Laurence Day	*Bristol.*	Pettee Block.
Bassett, Roscoe Conkling	*Alton.*	Pettee Block.
Brown, Charles Harold	*Fremont.*	Mr. Wentworth's.
Brown, Edna Olive	*Rye Beach.*	Mr. Hancock's.
Burnham, Esther Young	*Durham.*	Mr. Burnham's.
Campbell, William Smith	*Litchfield.*	Pettee Block.
Cannon, William Raynor	*Hanover, Mass.*	Prof. Read's.
Chase, Carl	*Webster.*	Pettee Block.
Crosby, Percy Raymond	*Atkinson.*	Pettee Block.
Day, Harold Robbins	*Hudson.*	Mr. Hanscom's.
Doe, Marion	*Durham.*	Mrs. Doe's.
Ellsworth, Perry Foss	*Meredith.*	Mrs. Adams'.
Emery, Roland Chester	*Hampton.*	Pettee Block.
Falconer, John Ironside	*Milford.*	Mr. Burnham's.
Fisher, John Alden	*Hinsdale.*	Pettee Block.
Foye, Carl Frank	*Dover.*	Mrs. Meserve's.
Godfrey, Frank Hoyt	*Concord.*	Mr. Schoonmaker's.
Goodwin, Otis Dana	*Hollis.*	Greenhouse.
Hammond, Roland Bowman	*Nashua.*	Mr. Sawyer's.
Hardy, Harold Elwin	*Hollis.*	Miss Berry's.
Hayes, Lawrence Corson	*Milton.*	Pettee Block.
Hubbard, Leland Orson	*Chesterfield.*	Mr. Colby's.
Hurlburt, Wallace Blanchard	*Northfield.*	Pettee Block.
Igo, Benjamin Joseph	*New Boston.*	Pettee Block.
Jenness, Ellwood S.	*Gonic.*	Mr. Wentworth's.
Jenness, Herbert Leon	*Rye Beach.*	Mr. Hayes'.
Johnson, Howard Eastman	*Goffstown.*	Prof. Groves.'
Kelley, Charles William	*Barnstead.*	Mr. Burnham's.
Kennedy, Carl Duncan	*Concord.*	Pettee Block.
Kimball, Charles Fellows	*Meriden.*	Miss Berry's.
Kimball, Leland Hayward	*Salt Lake City, Utah.*	Prof. Groves.'
Langelier, Wilfred F.	*Nashua.*	Pettee Block.
Lougee, Bernard Ayers	*Pittsfield.*	Mr. Burnham's.
Matthews, Charles Doane	*Portsmouth.*	Zeta House.
Merrill, Maurice David	*Andover.*	Brook Cottage.
Morrell, Herbert Ephraim	*Alton Bay.*	Pettee Block.
Osgood, Philip Marcus	*Pittsfield.*	Mr. Burnham's.
Parker, John Edward	*Goffstown.*	Mrs. Sanders.'
Parker, William Brackett	*Portsmouth.*	Kappa Sigma House.
Peaslee, Albert	*Gonic.*	Mr. Wentworth's.
Pettengill, George Herbert	*Amherst.*	Prof. Shaw's.
Pike, Herbert S.	*Lisbon.*	Pettee Block.
Poupart, Ernest Leo	*Colebrook.*	Mr. Schoonmaker's.

Name.	Residence.	Room.
Pratt, Lester Albert	*Alton Bay.*	Pettee Block.
Prescott, Earle Henry	*Newport.*	Mr. Colby's.
Price, Amos Richardson	*Gilmanton Iron Works.*	Thompson Hall.
Prince, Fred Stanley	*West Salisbury.*	
Quimby, Harold Wallace	*Northwood Narrows.*	Mr. Hoyt's.
Read, Arthur Pearl	*Westport.*	Mr. Colby's.
Revene, Patrick James	*Wheelwright, Mass.*	Pettee Block.
Richardson, Charles Sidney	*Cornish Centre.*	Mrs. Wiggin's.
Richardson, Harry Edward	*Marlborough.*	Mr. Schoonmaker's.
Rolfe, Benjamin Henry	*Concord.*	Mr. Schoonmaker's.
Sanborn, Edson Dana	*Fremont.*	Miss Berry's.
Sanderson, Herbert Henry	*Lancaster.*	Mr. Sawyer's.
Sargent, George Jackman	*Concord.*	Mr. Schoonmaker's.
Sloan, Frank Ackerman	*Amherst.*	Mr. Stevens'.
Smalley, Lee Lawrence	*Walpole.*	Pettee Block.
Smith, Arnold Drake	*North Hampton.*	Mr. Hayes.'
Smith, Cecil Frank	*Mont Vernon.*	Dr. Grant's.
Snow, Robert Jefferson	*Walpole.*	Mr. Schoonmaker's.
Stevens, Ernest Morton	*Andover.*	Brook Cottage.
Stokes, Iva Dorothy	*Gossville.*	Mr. Hancock's.
Talbot, Carl Wheeler	*Milford.*	Prof. Shaw's.
Thompson, Harold Brown	*Gossville.*	Pettee Block.
Townsend, Harry Storrs	*Lebanon.*	Miss Berry's.
Trickey, John Paul	*Rochester.*	Mr. Burnham's.
Trow, Herbert Averill	*Mont Vernon.*	Pettee Block.
Tucker, Herbert R.	*Concord.*	Mr. Schoonmaker's.
Tucker, James William	*Concord.*	Pettee Block.
Watson, Sumner William	*Rochester.*	Mr. Burnham's.
Wendell, Chester Snell	*Dover.*	Mrs. Sanders'.
Wentworth, Stephen Neal	*Rochester.*	Mr. Wentworth's.
Wilder, Howard Erwin	*Amesbury, Mass.*	Pettee Block.
Wilkins, Carroll Blaisdell	*Nashua.*	Mr. Sawyer's.
Wilkins, Harold Hartshorn	*Amherst.*	Mr. Stevens.'
Wood, Chester Loring	*Webster, Mass.*	Pettee Block.
Woods, Arthur Page	*Bath.*	Pettee Block.

TWO YEARS' COURSE.

Second Year.

Anderson, Edwin Hazelton	*Chester.*	Pettee Block.
Clough, Alfred Walker	*Greenland.*	Mr. Burnham's.
Dimond, Oliver Carter	*West Concord.*	Mr. Wentworth's.
Forristall, Ralph Wayne	*Alstead.*	Mr. Sawyer's.
Hargreaves, Stanley	*Durham.*	Mr. Edgerly's.
Knowles, Charles Walker	*Gilmanton.*	Mr. Edgerly's.

Name.	Residence.	Room.
Lindquest, Eno Alexander	*North Charlestown.*	Mr. Bunker's.
Sawyer, Robert Stanley	*Walpole.*	Pettee Block.

FIRST YEAR.

Armstrong, Maurice Greeley	*Windham.*	Mr. Schoonmaker's.
Batchelder, Daniel Raymond	*Wilton.*	Mr. Stevens'.
Bean, Merle Harrison	*Berlin.*	Mr. Sawyer's.
Blood, Alfred Elwin	*East Sullivan.*	Mr. Sawyer's.
Brackett, Edwin Lamprey	*Greenland.*	Mrs. Adams'.
Burbank, Ray Clyde	*Webster.*	Pettee Block.
Cole, Forrest Burnap	*Lebanon.*	Miss Berry's.
Cummings, George Henry	*Colebrook.*	Mr. Sawyer's.
Cummings, Walter	*Colebrook.*	Mr. Sawyer's.
Dean, Abram Lawrence	*Taunton, Mass.*	Prof. Scott's.
Eaves, Ernest Victor	*Dublin.*	Mr. Stevens'.
Frink, Simes	*Newington.*	Mrs. Adams'.
Hall, Harold Robinson	*Fairhaven, Mass.*	Prof. Scott's.
Hickey, William Patrick	*Bow.*	Mr. Sawyer's.
Kampe, Frederick Henry Charles	*East Alstead.*	Mr. Sawyer's.
Lord, Carey Stevens	*Allston, Mass.*	Mr. Burnham's.
Parker, Lee Augustus	*Keene.*	Pettee Block.
Prentiss, John Willard, Jr.	*Walpole.*	Mr. Sawyer's.
Sanborn, Lewis Elwell	*Ashland.*	Mrs. Mathes'.
Shuttleworth, Edwin Lewis	*Methuen, Mass.*	Zeta House.
Tucker, Ernest Eugene	*Durham.*	Mrs. Sanders'.
Wright, Charles Shannon	*Portsmouth.*	Mrs. Adams'.

SPECIAL COURSE.

Blandford, Clara	*Washington, D. C.*	Prof. Sanderson's.
Belleville, William Edward	*Hinsdale.*	Zeta House.
Doe, Dorothy	*Rollinsford.*	Rollinsford.
Flint, Wesley Pillsbury	*Newburyport, Mass.*	Zeta House.
Priest, James Harry	*Manchester.*	Mrs. J. Thompson's.
Robinson, Lilla	*Marlborough.*	Miss Berry's.

TEN WEEKS' COURSE.

DAIRYING.

Chaplin, Walter Dudley	*Concord, Vt.*
Fullam, Charles Francis	*North Brookfield, Mass.*
Gray, George Arthur	*Beverly, Mass.*
Hannaford, Irving Carroll	*Northumberland.*
Jacobs, Richard Dearborn	*Wollaston, Mass.*
LaLande, George	*New York City.*

Name.	Residence.
Nixon, William George	*East Brentwood.*
Ray, Everett Augustus	*Rumney.*
Stevens, David Brown	*Ashland.*
Wheeler, Harry Frank	*Salem.*

HORTICULTURE.

Day, George Albert	*Nahant, Mass.*

SUMMARY.

Post-Graduates	2
Seniors	10
Juniors	23
Sophomores	35
Freshmen	78
Students in Two Years' Course	30
Students in Ten Weeks' Course	11
Special Students	6
Total	195

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. †Present address unknown. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.

Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.
Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.

2—

1873.

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School. *Campbell, Cal.*

Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company Works. *Water St., East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.
206 So. Main Street, Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Market Gardener.
Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Merchant. *Kimball, Stearns County, Minn*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist.
287 Church Street, Keene.

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass*
11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.
329 West 4th St., Los Angeles, California.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.
North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.
6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder.
Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.
Box 56, Gardner, Mass.
7—

1877.

Rollin Kirk Adair, Indian Territory. Retail Groceries.
Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer.
East Westmoreland.

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass., Teacher.
334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.
Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.

13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)
73 Green Street, Leominster, Mass.

3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer.
The Elms, Springfield, Vt.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler.
5 Liberty Street, Concord.

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician.
324 Walnut Street, Newton (Newtonville P. O.), Mass.

6—*1

1880.

Charles Harvey Hood, Derry. Milk Business.
2 Benton Road, Somerville, Mass.

1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.
Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer. *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. Investments. *340 Main Street, Worcester, Mass.*

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Cor. Bains and Sims Streets, Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist and Stationer. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Berlin.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. Farmer. *R. F. D. No. 1, Shirley, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *1130 So. 20th St., Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. Physician.
San Elizario, Texas.

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883–1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Manager Raleigh Construction Co., 14 West Hargett St., Raleigh, North Carolina. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer.
Logan, Ohio.

Frederick Plummer Comings, Lee. Trustee New Hampshire College 1893–1903. *Lee.*

Frank Harry Foilansbee, Canaan. Railway Postal Clerk.
41 Sharon Street, West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.
231 So. Hayne Street, Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Registered Druggist.
Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.
121 Rantoul Street, Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher, Public Schools.
1620 College Avenue, Fort Worth, Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer and Farmer.
McKinley Block, Springfield, Vt.

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.
Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. In private business.
Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail, Dorchester and Cohasset.
587--593 Washington Street, Dorchester.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *5 Allen Street, San Juan, P. R.*

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.
Vernal, Utah.

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895--'97. Farm Superintendent.
Box 173 North Uxbridge, Mass.

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes Bridge, Ill.
Office 50 78th Street, Chicago, Ill.

Edward Alonzo Bailey, West Swanzey. Chair Maker.
55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and Mercantile Fire Insurance Company, 76 William Street, New York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890--'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician.
Hotel Buckminster, Commonwealth Ave. and Beacon Sts., Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.
Clinton, Mass.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Instructor in Modern Languages in the State College, "St. Cyrille," Maître au Gymnase, "St. Cyrille," de Gouvernement, Tirnovo, Bulgarie. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *85 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Lawyer. Solicitor for Hillsborough County. *146 Main Street, Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department. *3407 Holmead Avenue, N. W., Washington, D. C.*

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster. *U. S. Weather Bureau Office, Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Manager Western Sprinkler Risk Association. *240 La Salle Street, Chicago, Ill.*

George Albert Sanborn, Rochester. Salesman. *34 Pine Street, Rochester.*

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer, U. S. Geological Survey. *Washington, D. C., or Billings, Montana.*

Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *U. S. Weather Bureau, Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Sea View Railroad Company and Narragansett Pier Electric Light & Power Company. *Narragansett Pier, R. I.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau. *16 East Broad Street, Columbus, Ohio.*

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower.
Prosser, Wash.

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673--1679 Washington Street, Boston; 529--535 Dudley Street, Roxbury; and 587--593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America.
6 Worcester Square, Boston, Mass.

Charles Walter Earl Scott, Winchester. Mechanic.
Darrington, Wash.

David Elmer Stone, Hartford, Vt. Grain Merchant.
Framingham Center, Mass.

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department.
56 Carmel Street, New Haven, Conn.

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Expert, Reclamation Service, U. S. Geological Survey.
Chamber of Commerce Bldg., Denver, Colo.

†Joseph Franklin Preston, Hanover. Clerk.
Boston, Mass.

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier.
51 North Market Street, Boston, Mass.

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant.
Hampton.

Russell Marden Everett, Chester. Patent Lawyer and Solicitor.
788 Broad Street, Newark, N. J.

Edward Payson Stone, Canaan Center. Farmer.
Orford.

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Supervisor of Bridges and Buildings, New York City.
Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Chemist, Pennsylvania Department of Agriculture. *216 Market Street, Harrisburg, Pa.*

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station and Lecturer Yale University. *296 McKinley Ave., New Haven, Conn.*

Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor. *13-21 Park Row Building, New York City.*

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Consulting Engineer. *551 Boylston St., Boston, Mass.*

Orrin Moses James, Northwood. Civil Engineer and Surveyor. *Northwood Narrows.*

Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan. *Ann Arbor, Mich.*

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Machinist. *83 Kellher Street, Keene.*

Frederic William Howe, Hollis. Professor of Chemistry and Dietetics, State Normal School, Framingham, Mass., and Scientific Adviser for the Walker Gordon Laboratory Co. *793 Boylston Street, Boston, Mass.*

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company. *56 Pine Street, Bellows Falls, Vt.*

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Costkeeping Department). *7 Prospect Street, Claremont.*

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer in construction of Uba Railroad. *602 Rialto Bldg., San Francisco, Cal.*

4—

1896.

Lewis Harris Kittredge, Keene. The Peerless Motor Car Company. *Lisbon Street, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business.
112 Myrtle Street, Manchester.

Carrie Augustus Bartlett, Lee. Teacher. *Route 1, Newmarket.*

Mary Blaisdell Bartlett, Epping. Teacher in Biology, Concord High School. *99 North State Street, Concord, N. H.*

Walter French Buck, Manchester. Teacher, Milton Academy, Milton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Beverly High School.
78 Essex Street, Beverly, Mass.

Irving Lyford Dennett. Chief Engineer, New York Glucose Company. *Edgewater, N. Y.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Manual Training and Chemistry, Rayen School.
215 Arlington St., Youngstown, Ohio.

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*

Roscoe Hart Shaw, Milton. Chemist.
810 Humboldt Street, Manhattan, Kansas.

Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers. *Nome City, Alaska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher.
Boston, Mass.

Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm. *Stonehurst Farm, Intervale.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher, Lee, N. H.
R. F. D. 5, Dover.

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Durham.

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Professor of Agriculture, Delaware College. *Newark, Delaware.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry.
1937 13th Street, N. W., Washington, D. C.

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *Box 696, Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Electrical Engineer Kyoto Electric Light Company. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Mail Clerk.
25 Belknap Street, Dover.

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Assistant Professor of Mechanics, University of Wisconsin. Member American Society for Testing Materials. *919 University Avenue, Madison, Wis.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.
93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With Gulf Bag Co., San Francisco, Cal.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Foreman, Full Fashion Department, Sulloway Hosiery Mill.
121 Glenwood Avenue, Franklin Falls.

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.
52 Grove Street, Somersworth.

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. Atlanta Manager, Crocker-Wheeler Company.
425 Empire Building, Atlanta, Ga.

Harry Everett Barnard, Nashua. State Chemist, Laboratory of Hygiene, State House, Indianapolis, Ind.

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer. Member of Firm Clement & Strange, Engineers and Contractors.
307 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. With Brown Hoisting Machinery Co. *6018 Superior Ave., Cleveland, O.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. Engineering Department General Electric Company.
35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. Professor of Military Science and Tactics, New Hampshire College. *Durham.*

Louis Hobart Kenney, Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.
Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.
919 University Avenue, Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops.
Concord.

Etta Lillian Simpson, Durham. Principal Grammar School.
Acushnet, Mass.

12—

1900.

Herbert Prescott Andrews, Hollis Engineer, Century Electric Co. *1007-9-11 Locust St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School.
Rich Hall, Ashburton Place, Boston, Mass.

Frances Burnham, Durham. Teacher Lincoln School.
75 Pleasant St., Wakefield, Mass.

Blanche Mary Foye, Durham. Teacher in Concord High School.
Concord, Mass.

Charles Elliott Page Mathes. With Birmingham Railway Light & Power Company. *1717 Fifth Ave., Birmingham, Ala.*

Edward Emil Nelson, Nashua. Member of American Institute of Mining Engineers. Engineering and Contracting.
307 Dooley Block, Salt Lake City, Utah.

Alvena Pettee, Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903.
Durham, N. H.

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Avenue, Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.
Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.
Los Angeles, Cal.

Robert Morrill Wright, Hill. Dealer in Flour, Feed, Grain and Hay. *Hill.*

12—

1901.

Henry Harold Calderwood, Nashua. Turbine Assembly Department with General Electric Co.
428 Central Street, Saugus, Mass.

Charles Henry Courser, Warner. Chief Engineer, Wheelwright Paper Company, Wheelwright, Mass.

Alice Emerson Dorr, Dover. *35 Summer Street, Dover.*

Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company.
671 Western Avenue, Lynn, Mass.

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.

Charles Almon Hunt, Nashua. Second Lieutenant and Battalion Q. M. and Commissary, Twelfth United States Infantry.
Camp Jossmann, Guimaras, P. I.

Edwin Price Jewett, Lakeport. In charge Prescription Department Walker Gordon Laboratory Co.
2112 Michigan Avenue, Chicago, Ill.

Robert McArdle Keown, Pomona, Fla. Instructor in Machine Design, University of Wisconsin.
University of Wisconsin, Madison, Wis.

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Dixon Academy. *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City.

Edson Albert Straw. Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Rollinsford. *Rural Route No. 2, Dover.*

Edwin W. Gilmartin, Nashua. Engineering Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

John C. Kendall, Peterborough. Assistant Professor of Dairy Husbandry, North Carolina College of Agriculture and Mechanic Arts. *West Raleigh, N. C.*

Harry M. Lee, Moultonborough. Foreman. *Windsor, Vt.*

Abiel A. Livermore, Wilton. Rose Grower with J. A. Budlong & Son Co. *153 Greenwood St., Auburn, R. I.*

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Teacher, Farm School, Bucks Co., Pa. *Hampton Falls.*

Charles A. Payne, Portsmouth. Engineering Department, General Electric Company. *50 Mall Street, West Lynn, Mass.*

Eugene P. Runlett, Durham. With Williams & Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Bureau Internal Revenue. *Treasury Department, Washington, D. C.*

9—

1903.

Harry David Batchelor, West Upton, Mass. Chief Chemist, Sharon Coke Works, South Sharon, Pa.

Edgar Forest Bickford, Rochester. Assistant Electrician, Pittsburg Railway Company. *281 Shady Ave., Pittsburg, Pa.*

Frank Ray Brown, Durham. Instructor, Forge Shop, New Hampshire College, Durham.

Everett William Burbeck, Haverhill. Mining Engineer. Spruce Office, Adams & Spruce Mines. *P. O. Box 370, or Spruce Office, Eveleth, Minn.*

†Everett Garfield Davis, Newmarket.

Albert Noah Otis, Durham. Testing Department, General Electric Company, Schenectady, N. Y. *31 Eagle Street, Schenectady, N. Y.*

Ralph Harvey Rollins, East Concord. Engineer, Irrigation Construction. *Hazen, Nev.*

Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass. *9 Allston Street, Somerville, Mass.*

David Albert Watson, Durham. Gardener. *Durham.*

Melvin Johnson White, Farmington. Reporter. *326 Amherst Street, Manchester.*

10—

1904.

Leander Ashton Pittsfield. Assistant, Woodland Conservatories, Aspen Ave., Auburndale, Mass.

Walter Allen Barker, Pittsfield. Civil Engineering Department, B. & A. R. R., Room 372, South Station, Boston, Mass.

Edgar Charles Bickford, Durham. B. E. Ry. E. E. Office. *552 Harrison Ave., Boston, Mass.*

Percy Anderson Campbell, Litchfield. Post-Graduate Iowa State College, Station A, Ames, Ia.

Carrol Winfred Farr, North Weare. Dairy Farmer.
North Weare.

Joseph Ezra Goodrich, New Durham. Instructor of Mathematics and Science, Norwood High School.
39 Cottage St., Norwood, Mass.

†George Herbert Hill, La Crosse, Wis.

Thomas Jefferson Laton, Nashua. Testing Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

Raymond Louis Lunt, Dover. Surveyor.
Box 14, Dover.

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School, Woodbine, New Jersey.

Samuel Ambrose Richardson, Charlestown. Engineer with Am. Tel. & Tel. Co., 22 Thames St., New York.

1905.

John Henry Chesley, Rockingham. Testing Department, General Electric Company. *77 Mall Street, West Lynn, Mass.*

Cleon Orestes Dodge, Sunapee. Chemist, Sharon Coke Company, South Sharon, Pa.

Silas Bryden Hayden, South Natick, Mass. Illinois Steel Company. *506 La Salle Avenue, Chicago, Ill.*

Harry Linwood Hayes, Exeter. Boston Office, General Electric Company.

Warren Chauncey Hayes, Durham. *Durham.*

Fred Harvey Heath, Warner. Student in Graduate School of Yale University.
P. O. Box 648, Yale Station, or 648 E. Divinity Hall, New Haven. Conn.

Harold Nims Knight, Marlborough. Farm Foreman.
Marlborough.

Joseph Wesley Moreton, Medford, Mass. Engineering Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360 East Pittsburg, Pa.

Orlo Dudley Mudgett, Gilmanton. Testing Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360 East Pittsburg, Pa.

Horace James Pettee, Durham. Illinois Steel Co.
506 La Salle Ave., Chicago, Ill.

Arthur Mahlon Pike, Dover. General Electric Co., Lynn, Mass.
77 Mall St., West Lynn, Mass.

Fred Silver Putney, Hopkinton. Herdsman, Mt. Putney Farm. *R. F. D., No. 2, Contoocook.*

John Leslie Randall, Lee. Graduate Student in Biology at New Hampshire College. Student Assistant in Biology. *Durham.*

William Orrin Robinson, Marlborough. Graduate Student in Chemistry at New Hampshire College. Student Assistant in Chemistry. *Durham.*

Harry Union Russell, West Derry. Scholar in European History, University of Wisconsin. *127 University Library Building, Madison, Wis.*

Elmer Seth Savage, Lancaster. Instructor in Dairying, Baron de Hirsch School, Woodbine, N. J.

Castine Caroline Swanson, Cambridge, Mass. Assistant Principal, Sandwich High School. *17 Upland Road, Cambridge, Mass.*

Frank Alvin Tinkham, Grafton. Superintendent, New Hampshire College Farm. *Durham.*

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) With Sacramento Gas, Electric & Railway Company. *3206 Madrone Ave., Oak Park, Sacramento, Cal.*

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. Florist, New Hampshire College.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Homedale Farm. *Chester.*
†Thornton N. Weeks, Greenfield. (1902.)
Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.
Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros.
6022 Princeton Avenue, Chicago, Ill.
†Harry Garfield Brierley. (1903.) Dover.
†George Grover Manning. (1903.) Boston, Mass.
†James Henry Nixon. (1903.) East Brentwood.
†Roscoe Franklin Swain. (1903.) South Hampton.
Erland Graves Batchelder. (1904.) Wilton. Dairying and Gardener, Kimball Heights Farm.
R. F. D., No. 3, Wilton, N. H.
‡Wesley Pillsbury Flint. (1904.) Newburyport, Mass.
Henry Marston Shurbert. (1904.) Northwood Ridge. Gardener C. G. Rice Estate, Turner Hill, Ipswich, Mass.

SUMMARY.

Graduates, Bachelors of Science, 1871–1905	277
Graduates, Two Years' Course	28
Agriculturists	57
Architects	1
Business Pursuits	54
Chemists	9
Clergyman	1
Civil, Mechanical, Electrical and Mining Engineers	39
Draftsmen	5
Graduate Students	4
Lawyers	5
Manufactures and Mechanics	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	17

‡Special student, New Hampshire College.

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Carpenter, L. J., 1882
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
Chesley, J. H., 1905.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.

*Dead.

*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.
Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Dodge, C. O., 1905.
Doe, Miss Mary, 1902.
Dorr, Miss A. E., 1901.
Dunn, A. G. (2 year), 1905.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. 1904 (2 year), 1902.
Farwell, H. G., 1901.
*Flint, W. F., 1877.
Flint, W. P. (2 year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Goodrich, J. E., 1904.
Gowen, Miss E. G., 1901.
Gowing, H. N. (2 year), 1905.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, S. B., 1905.
Hayden, W. D. F., 1899.
Hayes, H. L., 1905.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hayes, W. C., 1905.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Heath, F. H., 1905.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, G. H., 1904.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
Knight, H. N., 1905.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.

*Dead.

James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.
Knowles, A. C. (2 year), 1900.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, A. R., 1904.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Moreton, J. W., 1905.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mudgett, O. D., 1905.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2 year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Pettee, H. J., 1905.
Pike, A. M., 1905.
Porter, G. E., 1888.
Preston, J. F., 1890.
Putney, F. S., 1905.
Putney, H. N., 1899.
Quimby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Randall, J. L., 1905.
Record, C. E., 1878.
Richardson, H. P., 1898.
Richardson, S. A., 1904.
Robertson, Miss M. L., 1900.
Robinson, W. O., 1905.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Russell, H. U., 1905.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
Savage, E. S., 1905.
*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.

*Dead.

Shurbert, H. M. (2 year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2 year), 1903.
Swanson, Miss C. C., 1905.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tinkham, F. A., 1905.
Tolles, B. D., 1898.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.
Wason, E. H., 1886.
Watson, D. G., 1903.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
White, M. J., 1903.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

* Dead.

SPECIMEN ENTRANCE EXAMINATON PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}} - a\sqrt{x}$ and $3bx^2 - \frac{2}{3}ax^{\frac{1}{2}} + 4b$.

3. Multiply:

$(-4ab)$, $(3\sqrt{ab})$, $(-\sqrt{-ab})$, $(3\sqrt{-ab})$, $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of x^6+y^6, x^{-1}, $-y^{-6}$, $x^{2m}+x^m-2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a}+\sqrt{b}}$, $\frac{1}{a^{\frac{1}{2}}+b^{\frac{1}{5}}}$ to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax} + \frac{3}{by} = 5$ and $\frac{5}{ax} - \frac{3}{by} =$

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x-2a+3a^2)^2$. Perform operations indicated.

8. $3ax^2 - 2x + 3b = 0$. Solve for x.

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3} + 1\frac{3}{7}$.

3. $3.014 + 27.900 \div .047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}} \times \frac{4}{3} \div \frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual and compound interest on $1,200 for 3 years, 2 months and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, litre, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in litres?

BOTANY.

1. Describe a germinating seed that you have studied, as to seed coats, parts of embryo and presence of albumen or endosperm.

2. What are the three principal parts of a plant, and what does each do for the plant?

3. Describe the form, structure and reproduction of a particular cryptogamous, or flowerless, plant.

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. What are the following and what part does each play in the life of the plant: chlorophyll, stoma, epidermis, root-hair, protoplasm?

6. What is the difference between a fruit and a seed?

7. Describe an exogenous stem as seen in cross-section. How does it differ from an endogenous stem?

8. Give the meaning of the following as applied to flowers: perfect, monœcious, hypogynous, polypetalous, receptacle.

9. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

ENGLISH.

The composition must be correct in spelling, grammar and punctuation.

I.

Select any *four* of the following topics, and write a short composition on each:

1. The Speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one.*

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir;* third singular, *aller;* third plural, *finir.* (*b*) Principal parts, *faire, venir, mettre, voir, prendre.*

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me this pen, if you please. (6) I shall see him tomorrow and he will

give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston today, but she will be in Durham tomorrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre coté du sentier, tiré par un homme qu'il n'avait point aperçu et qu 'il ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d' Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, recontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orso tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitôt, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantômes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hammeau en hameau, de chaumière, en chaumière, il allait, il allait, il allait. . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces pauvres mains habituées à recevoir de petites piéces de mon-

naie blanche. Le curé fit même des folies, des vraies folies; it était lancé, il ne se connaissait plus. Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (*a*) Principal parts of brechen, gehen, halten, lesen, schlagen. (*b*) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er, neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schüchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.— [*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans hatte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechts oder nach links zu schauen, und endlich in Sommer des Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet. [*Hillern, Hoeher, als die Kirche.*]

(a) Elisabeth setzte sich unter eine unberhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt

sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.— [*Storm, Immensee.*]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.
2. Draw a map showing Asia Minor, Macedonia and the principal Grecian cities.
3. Locate and, with a sentence for each, describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.
4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtæus, Lycurgus.
5. Give a brief account of the Peloponnesian War.
6. Give a brief account of the Expedition of the Ten Thousand.
7. Give an account of the life and work of Herodotus.
8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time in the Transvaal?
2. Is it now day, or night, in Manila?
3. Describe the climate of Havana, Pekin and Cape Nome.
4. State the causes of the variations in season, climate, day and night.
5. Describe the trade winds.
6. What ocean currents produce the fogs on the Grand Banks? Why?
7. What causes the high tides in the Bay of Fundy?
8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of 30 miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when 12 pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpendicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the polygon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate and, with a sentence for each, describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott Case.

7. Starting with 1789, explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the Constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term and the election provisions for senators; for the members of the House of Representatives.

SPECIMEN ENTRANCE EXAMINATION FOR TWO-YEAR STUDENTS.

GEOGRAPHY.

1. Name and locate the capitals of the following states: New York, Arkansas, California, Iowa, Ohio, South Carolina, New Jersey and Utah.

2. Name the six largest cities of the United States and tell where they are located.

3. Name the five largest rivers of the United States and tell where they rise and where they empty.

4. Where are the following mountains: Adirondack, Sierra Nevada, Ozark, Wahsatch, Alleghany, Green and Blue Ridge?

5. Bound the following states: Georgia, Washington, Illinois and Vermont.

6. Through what bodies of water would you pass in going by steamboat from Pittsburgh to Chicago?

7. Describe the physical features of New England.

8. What is the area and population of New Hampshire?

9. In about what latitude and longitude is New Hampshire located?

10. Name the counties of New Hampshire and give their county seats.

ARITHMETIC.

1. Give tables for dry measure and square measure.

2. Multiply 18 and 2/3 by 4/15.

3. Divide 4.57683 by .0123.

4. How many tons of hay could be placed in a mow 14 feet square and 22 feet deep, assuming that a cubic foot of hay weighs 6 lbs?

5. What would be the cost of 2,660 lbs. of hay at $14 per ton?

6. How many apple trees could be set in a 6-acre orchard if the trees were placed 40 feet apart each way?

7. What would be the interest on $350 for 20 months at 6%?

8. How many cords in a pile of cord wood 68 feet long and 6 feet high?

9. A bushel contains 2,150 cubic inches; how many bushels of oats could be placed in a bin 6 feet wide, 5 feet deep and 12 feet long?

10. How many tons of silage could be placed in a round silo 14 feet in diameter and 30 feet deep, assuming that a cubic foot of silage weighs 40 lbs.?

ENGLISH.

1. Write a complete letter in answer to an advertisement, asking for a position.

2. Write a careful description of the appearance of the town from which you have come.

3. Define and illustrate the parts of speech.

4. Illustrate the use of the different marks of punctuation. What is a verbal noun, an infinitive, a noun in apposition?

5. Write, in 100 words, the story of the last interesting book that you have read.

HISTORY OF THE UNITED STATES.

1. (*a*) Give an account of the first settlement in Virginia. (*b*) Give an account of the first settlement in Massachusetts.

2. Give some account of the French and Indian War, including (*a*) causes, (*b*) campaign of 1755, (*c*) most important campaign, (*d*) political results that followed the war, (*e*) connection, if any, with American Revolution.

3. Name the presidents of the United States, stating approximately the years when each one was in office. Give

the political party of each one and some one important fact concerning his administration.

4. What were the causes of the Spanish-American War? What were the results?

5. What is the meaning of "sixteen to one"? What political parties exist at present? What change is proposed in election of United States senators?

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS

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CALENDAR.

1906

JULY

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1907

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1908

JANUARY

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COLLEGE CALENDAR,

1906.

Sept.	4-5.	Examinations for admission begin Tuesday at 9 a. m.
Sept.	6.	Regular college exercises begin Thursday at 10 a. m.
Oct.	10.	Stated meeting of Trustees.
Dec.	21.	First term ends Friday night.

WINTER VACATION.

1907.

Jan.	8.	Registration day. Second term begins Tuesday.
Jan.	9.	Stated meeting of the Trustees.
March	15.	Second term ends Friday night.

SPRING VACATION.

March	26.	Registration day. Third term begins Tuesday.
April	10.	Stated meeting of Trustees.
May	28.	Senior examinations completed, 4 p. m.
June	2.	Baccalaureate sermon, Sunday at 10.45 a. m.
June	3.	Prize Drill, 8 p. m., in the Armory.
June	4.	Class Day. Stated meeting of Trustees. Glee Club concert at 8 p. m. in Thompson Hall.
June	5.	Commencement Day, Wednesday.

SUMMER VACATION.

Sept. 3-4. Examinations for admission begin Tuesday at 9 a. m.
Sept. 4. Registration day. First term begins Wednesday.
Oct. 9. Stated meeting of Trustees.
Dec. 20. First term ends Friday night.

WINTER VACATION.

1908.
Jan. 7. Registration day. Second term begins Tuesday.

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*Died August 19th, 1906.

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CHARLES BROOKS, A. M., *Associate Professor of Botany.*

---

* Resigned October 1, 1906.

** Beginning January 1, 1907.

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JOHN D. CLARK, B. S., *Student Assistant in Chemistry.*

GEORGE S. HAM, *Farm Foreman.*

MABEL E. TOWNSEND, A. B., *Associate Librarian; Registrar.*

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ALICE G. BAKER, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

† Resigned October 15, 1906.

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Hon. WARREN BROWN,	Hampton Falls
Hon. N. J. BACHELDER, A. M., M. S.,	East Andover
Pres. WILLIAM D. GIBBS, *ex officio,*	Durham

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FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agriculturist.*
E. DWIGHT SANDERSON, B. S., *Entomologist.*
†IVAN C. WELD, *Dairy Manufactures.*
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CHARLES BROOKS, A. M., *Associate Botanist.*
J. K. SHAW, B. Sc. (Agr.), *Associate Horticulturist.*
B. E. CURRY, M. S., *Associate Chemist.*
T. J. HEADLEE, A. M., Ph. D., *Assistant Entomologist.*
GEORGE S. HAM, *Farm Foreman.*
EDITH M. DAVIS, *Purchasing Agent.*
MABEL H. MEHAFFY, *Stenographer.*
ALICE G. BAKER, *Bookkeeper.*

* Resigned October 1, 1906.
† Resigned October 15, 1906.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

POST-GRADUATE.

Name.	Residence.	Room.
Clark, John Dustin	*Nashua.*	The Castle.

SENIORS.

Name.	Residence.	Room.
Batchelor, Leon Dexter *a*	*West Upton, Mass.*	Kappa Sigma House.
Berry, Philip Ray *m e*	*Alton.*	Miss Berry's.
Broggini, Andrew *e e*	*Concord.*	Kappa Sigma House.
Dodge, Carl Austin *c*	*New Boston.*	Kappa Sigma House.
Ingham, Harry Edward *m e*	*Nashua.*	Kappa Sigma House.
Lane, Frank Davis *m e*	*Manchester.*	Kappa Sigma House.
Littlefield, Ralph Albion *a*	*Portsmouth.*	Mr. G. Ham's.
Noyes, Bernard C. *a*	*Lisbon.*	Zeta House.
Powers, John Glenn *a*	*Concord.*	Kappa Sigma House.
Randall, Frank Wiggin *e e*	*Portsmouth.*	Delta Hall.
Townsend, Ellice Storrs *g*	*Lebanon.*	Miss Berry's.
Watson, Lucia Soule *g*	*Durham.*	Mr. D. Watson's.
Woodward, Arthur Jason *e e*	*Lancaster.*	Delta Hall.

JUNIORS.

Name.	Residence.	Room.
Adams, Waldo Lawrence *c*	*Townsend, Mass.*	Mrs. Sanders'.
Barton, Arthur Hosea *e e*	*Newport.*	Thompson Hall.
Batchelder, Arthur Milliken *e e*	*Suncook.*	Kappa Sigma House.
Buss, Minot Giles *e e*	*Wilton.*	Kappa Sigma House.
Carlisle, Lawrence Andrew *a*	*Exeter.*	Exeter.
Cash, James Dennis *a*	*Manchester.*	Zeta House.

Chesley, Mary Abbie *g*	*Lee.*	Lee.
Clough, Francis *e e*	*Contoocook.*	Kappa Sigma House.
Cory, Merton M. *e e*	*Nashua.*	Pettee Block.
Croghan, John Timothy *e e*	*Concord.*	Kappa Sigma House.
DeMeritt, Kathardine *g*	*Durham.*	Mr. A. DeMeritt's.
Dickey, Harold Hurst *g*	*Manchester.*	Kappa Sigma House.
Evans, Walter Woods *c*	*East Kingston.*	Delta Hall.
Farwell, Oren Lovell *a*	*Harrisville.*	Delta Hall.
French, Harry Fifield *c*	*Plymouth.*	Kappa Sigma House.
Hill, Stanley Fisk *m e*	*Nashua.*	Delta Hall.
Huse, Merritt Chase *e e*	*Concord.*	Kappa Sigma House.
Kirkpatrick, William R. *m e*	*Nashua.*	Delta Hall.
Murchie, William Ewart *e e*	*Concord.*	Kappa Sigma House.
O'Connor, John Joseph *e e*	*Portsmouth.*	Zeta House.
Page, John Caleb *g*	*Boston, Mass.*	Nesmith Hall.
Perley, George Arthur *c*	*Goffstown.*	Prof Pettee's.
Pettee, Sarah Elizabeth *g*	*Durham.*	Prof. Pettee's.
Smalley, Dean Fred *e e*	*Walpole.*	Delta Hall.
Tarbell, Carl Brown *m e*	*Milton.*	Kappa Sigma House.
Wadleigh, Ray Emery *e e*	*Hampton Falls.*	Kappa Sigma House.
Waite, George Lyman *a*	*Dunbarton.*	Zeta House.
Walker, Harold Duncan *e e*	*Kittery Point, Me.*	Zeta House.
Woodman, Francis Ward *c*	*West Derry.*	Mrs. Sanders'.

SOPHOMORES.

Name.	Residence.	Room.
Ackerman, Laurence Day *c*	*Bristol.*	The Castle.
Brown, Edna Olive *g*	*Rye Beach.*	Prof. Hancock's.
Burnham, Esther Young *g*	*Durham.*	Mr. Burnham's.
Campbell, William Smith *e*	*Litchfield.*	Pettee Block.
Chase, Carl *e*	*Webster.*	The Castle.
Cone, Charles Francis *e*	*Nashua.*	Zeta House.
Doe, Marion *g*	*Durham.*	Mr. Frank Doe's.
Ellsworth, Perry Foss *e*	*Meredith.*	Mr. Hoitt's.
Falconer, John Ironside *a*	*Milford.*	Mr. Stevens'.
Goodwin, Otis Dana *e*	*Hollis.*	Prof. Shaw's.
Hammond, Roland Bowman *e*	*Nashua.*	Zeta House.
Hardy, Harold Elwin *a*	*Hollis.*	Mr. Stevens'.
Hayes, Lawrence Corson *e*	*Milton.*	Pettee Block.
Hurlburt, Wallace Blanchard *e*	*Northfield.*	The Castle.
Jenness, Herbert Leon *e*	*Rye Beach.*	Zeta House.
Kelley, Charles William *e*	*Barnstead.*	Miss Berry's.
Kennedy, Carl Duncan *c*	*Concord.*	Pettee Block.
Kimball, Charles Fellows *c*	*Meriden.*	Miss Berry's.

Kimball, Leland Hayward *e*	*Salt Lake City, Utah.*	The Castle.
Lougee, Bernard Ayers *e*	*Pittsfield.*	Dr. Grant's.
McKone, Frank E. *e*	*Dover.*	Dover.
Matthews, Charles Doane *a*	*Portsmouth.*	Zeta House.
Merrill, Maurice David *e*	*Andover.*	Pettee Block.
Osgood, Philip Marcus *e*	*Pittsfield.*	Miss Berry's.
Parker, John Edward *a*	*Goffstown.*	Mrs. Sanders'.
Parker, William Brackett *g*	*Portsmouth.*	Kappa Sigma House.
Peaslee, Albert *e*	*Gonic.*	Mr. Burnham's.
Pike, Herbert S. *e*	*Lisbon.*	Mr. Edgerly's.
Pratt, Lester Albert *c*	*Alton Bay.*	The Castle.
Priest, James Harry *e e*	*Manchester.*	Mrs. J. Thompson's.
Quimby, Harold Wallace *e*	*Northwood Narrows.*	Mr. Hoitt's.
Richardson, Charles Sidney *e*	*Cornish Centre.*	Nesmith Hall.
Rolfe, Benjamin Henry *g*	*Concord.*	Kappa Sigma House.
Sanborn, Edson Dana *a*	*Fremont.*	Mr. Wentworth's.
Sanborn, Moses Harmon *a*	*Fremont.*	Zeta House.
Sargent, George Jackman *c*	*Concord.*	Pettee Block.
Smalley, Lee Lawrence *e*	*Walpole.*	Delta Hall.
Stevens, Ernest Morton *e*	*Andover.*	Pettee Block.
Stokes, Iva Dorothy *g*	*Epsom.*	Prof. Hancock's.
Townsend, Harry Storrs *a*	*Lebanon.*	Delta Hall.
Trickey, John Paul *c*	*Rochester.*	The Castle.
Trow, Herbert Averill *e*	*Mount Vernon.*	Pettee Block.
Tucker, James William *e*	*Concord.*	Pettee Block.
Watson, Sumner William *a*	*Rochester.*	Mr. Burnham's.
Wendell, Chester Snell *e*	*Dover.*	Mrs. Sanders'.
Wentworth, Stephen Neal *c*	*Rochester.*	Delta Hall.
Wilder, Howard Erwin *e*	*Amesbury, Mass.*	Prof. Shaw's.
Wilkins, Carroll Blaisdell *a*	*Nashua.*	Zeta House.
Wilkins, Harold Hartshorn *e*	*Amherst.*	Pettee Block.
Wood, Chester Loring *u*	*Dudley, Mass.*	Greenhouse.
Woods, Arthur Page *e*	*Bath.*	Pettee Block.

FRESHMEN.

Name.	Residence.	Room.
Anderson, David Wadsworth	*Manchester.*	Pettee Block.
Atherton, Luther Elmer	*Lebanon.*	Pettee Block.
Bell, Henry Gatie	*Durham.*	
Bills, Frank Hartwell	*Reed's Ferry.*	Mr. Hayes'.
Blake, Alfred Edward	*Nashua.*	Mr. Stevens'.
Boynton, Dalton	*Little Boar's Head.*	Pettee Block.
Bryant, Orville Frank	*Ashland.*	Mr. Schoonmaker's.
Burns, Lucian Holmes	*Milford.*	Mrs. Wiggin's.

Burroughs, Edgar Herbert	*Sanbornville.*	Mr. Sawyer's.
Burroughs, Wilbur Warren	*Sanbornville.*	Mr. Sawyer's.
Carson, Forest Guy	*Francestown.*	Mr. Ham.
Chamberlin, George H.	*Woodsville.*	Pettee Block.
Clark, Maurice Chester	*Marlboro.*	Mr. Stevens'.
Colburn, Kenneth Crosby	*Francestown.*	Mr. Ham's.
Converse, Henry Thomas	*Amherst.*	Mr. Sawyer's.
Corliss, Harry Percival	*Wolfboro.*	Mr. Schoonmaker's.
Corson, Harry Peach	*Laconia.*	Mr. Sawyer's.
Cotton, Arthur Clyde	*Alton.*	Pettee Block.
Crosby, Percy Raymond	*Atkinson.*	Pettee Block.
Day, Harold Robbins	*Hudson.*	Thompson Hall.
Edgerly, Edwin Blake	*Mirror Lake.*	Mr. Hayes'.
Emery, Roland Chester	*Hampton.*	Mr. Burnham's.
Fifield, Stuart Guy	*Penacook.*	Mr. Schoonmaker's.
Fisher, Stanley Revell	*Ellis, Mass.*	Mr. Wentworth's.
Fitch, Harry Edward	*Manchester.*	Pettee Block.
Foster, George Goodwin	*Sandwich, Mass.*	Miss Berry's.
French, Edward Daniel	*Amesbury, Mass.*	So. Hampton.
George, Wallace Bruce	*Newmarket.*	Newmarket.
Hefler, George Burpee	*Brockton, Mass.*	Pettee Block.
Hoben, Frank M.	*Concord.*	Mr. Schoonmaker's.
Holmes, Harry Wesley	*Northwood.*	Mr. Stevens'.
Hooper, Frederic Leslie	*Winchester.*	Mr. Burnham's.
Hoyt, Simes Thurston	*Newington.*	Mr. Edgerly's.
Jenness, Elwood S.	*Gonic.*	The Castle.
Kidder, Walter Dennis	*Manchester.*	Pettee Block.
Knapp, Raymond Adelbert	*Gloucester, Mass.*	Mrs. O'Hearn's.
Lane, Arthur Seavey	*Kittery Foreside, Me.*	Mr. Edgerly's.
Langelier, Wilfred W.	*Nashua.*	Zeta House.
Lawrence, Cheney E.	*Nashua.*	Pettee Block.
Leonard, James Mortimer	*Woodsville.*	Pettee Block.
McGrail, Frederic Richard	*East Pepperell, Mass.*	Pettee Block.
McLaughlin, Leon Eugene	*Laconia.*	Mr. Sawyer's.
Morrison, Leonard S.	*Penacook.*	Mr. Schoonmaker's.
Neal, Haldimand W.	*Dover.*	Mr. Schoonmaker's.
Neal, Robert Abbott	*Dover.*	Mr. Schoonmaker's.
Pattee, Carl Burnham	*Goffstown.*	Mr. Edgerly's.
Peel, Charles Edward	*Nashua.*	Mr. Wentworth's.
Perkins, Clement Linwood	*Berwick, Me.*	Pettee Block.
Pettengill, George Herbert	*Amherst.*	Mr. Hoitt's.
Philbrook, Henry Brown	*North Hampton.*	Mr. Schoonmaker's.
Proud, Brenton William	*Manchester.*	Pettee Block.

Read, Harold Clifford	*Westport.*	Mr. Burnham's.
Reynolds, Clearton Howard	*Middletown, N. Y.*	Mr. Schoonmaker's.
Ryan, John Joseph	*Waterbury, Conn.*	Mr. Ham's.
Scammon, Raymond Brewster	*Stratham.*	Stratham.
Scott, Bessie Amanda	*Tyson, Vt.*	Prof. Scott's.
Sherburne, Philip Webster	*Pittsfield.*	Miss Berry's.
Sloan, Frank Ackerman	*Amherst.*	Zeta House.
Smith, James William	*Franconia.*	Mrs. O'Hearn's.
Sproul, Avard Cummings	*Quincy, Mass.*	Mr. Schoonmaker's.
Sullivan, Robert Lawrence	*Reed's Ferry.*	Mr. Hayes'.
Swan, Clyde Henry	*Keene.*	Mr. Burnham's.
Tenney, Harry William	*Newport.*	Mr. Schoonmaker's.
Thorp, Theron Alberto	*Exeter.*	Exeter.
Towne, Ernest George	*Thornton.*	Prof. Sanderson's.
Upton, Hiram D.	*Manchester.*	Prof. Parsons'.
Waite, Ira Merrill	*Goffstown.*	Mr. Edgerly's.
Wells, Burleigh Ray	*Somersworth.*	Pettee Block.
Wilkins, Aaron Wallace	*Milford.*	Pettee Block.
Wright, Chesley Frank	*New Durham.*	Pettee Block.
Wyman, Horace Chester	*Manchester.*	Prof. Parsons'.

TWO-YEAR COURSE.

Second Year.

Name.	Residence.	Room.
Batchelder, Daniel Raymond	*Wilton.*	A. T. A.
Blood, Alfred Elwin	*East Sullivan.*	A. T. A.
Brackett, Edwin Lamprey	*Greenland.*	A. T. A.
Dean, Abram Lawrence	*Taunton, Mass.*	Prof. Scott's.
Frink, Simes	*Newington.*	A. T. A.
Hickey, William Patrick	*Bow.*	Mr. W. Beard's.
Kampe, Frederick Henry Charles	*East Alstead.*	A. T. A.
Parker, Lee Augustus	*Keene.*	Pettee Block.
Sanborn, Lewis Elwell	*Ashland.*	A. T. A.
Tucker, Ernest Eugene	*Durham.*	Mrs. Sander's.
Wright, Charles Shannon	*Portsmouth.*	Prof. Scott's.

First Year.

Name.	Residence.	Room.
Allen, James H.		Pettee Block.
Brown, Charles Harold	*Fremont.*	Mr. Wentworth's.
Carter, Harry	*Hedding.*	Pettee Block.
Cummings, George Henry	*Colebrook.*	Brook Cottage.

Cummings, Walter	*Colebrook.*	Brook Cottage.
Foss, Mark	*Durham.*	Mr. L. K. Foss's.
Holmes, George Allen	*Langdon.*	Pettee Block.
Hunter, Ernest Melville	*Melvin Village.*	Mr. Hayes'.
Leavitt, Guy	*Sanbornton.*	Pettee Block.
Littlefield, Harold Thorn	*Salem Depot.*	Pettee Block.
Parmenter, William O., Jr.	*Springfield, Mass.*	Mr. Hoitt's.
Prentiss, John Willard, Jr.	*Walpole.*	A. T. A.
Smith, Harry A.	*Wilton.*	
Stepansky, Henry David	*Durham.*	Pettee Block.

SPECIAL COURSE.

Name.	Residence.	Room.
Abbott, Walter Sidney	*Manchester.*	Mrs. O'Hearn's.
Bunker, Eva Eldora	*Durham.*	Mr. Bunker's.
Burr, Lottie Josephine	*Dover.*	Dover.
Langdell, Russell Stearns	*Lowell, Mass.*	Mr. Wentworth's.
Lord, Carey Stevens	*Allston, Mass.*	Mr. Burnham's.
Robinson, Lilla	*Marlborough.*	Miss Berry's.
Tredick, Helen F.	*Exeter.*	Exeter.

TEN-WEEK COURSE.

Name.	Residence.
Belden, Earle Jerome	*Waitsfield, Vt.*
Burnham, Wayne Morris	*East Barnard, Vt.*
Chase, Claude Clement	*Warner.*
Clark, Hugh	*West Fairlee, Vt.*
Douglas, Moses Hale	*New Highlands, Mass.*
Gauvin, Edward George	*Barton Landing, Vt.*
Jackson, Clarence Sanford	*Ludlow, Vt.*
Littlefield, Harold Thorn	*Salem Depot.*
Lyons, John Clarence	*Beverly, Mass.*
Newton, Roland Wallace	*Middlebury, Vt.*
Quinn, Matthew James	*Fairhaven, Vt.*
Storer, Eliot Chesley	*Arlington, Mass.*
White, Barton Edsall	*Grafton.*

SUMMARY.

Post-Graduates	1
Seniors	13
Juniors	29
Sophomores	49
Freshmen	73
Students in Ten-Week Course	25
Students in Two-Year Course	13
Special Students	9
Total	212

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made

by the state for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio;* the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the acts of 1887 and 1906, $22,000, to be applied only for use of the Agricultural Experiment station; from the same source under the act of 1890, $25,000; and from the state, $13,000; and from various other sources, about $5,000.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
    - *a.* Four-year course.
    - *b.* Two-year course.
    - *c.* Ten-week course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided,*

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this sholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of grange scholarships must be residents of New Hampshire.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition,	Free		$60.00
Text-books,	$10.00	to	30.00
Military uniform for new students,	16.00	to	16.00
Drawing instruments and materials,	7.50	to	30.00
Fees*,	20.00	to	20.00
Room rent, including fuel,	30.00	to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks,	105.00	to	122.50
Total,	$188.50		$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, langauges, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a term are required to register at the registrar's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ATTENDANCE.

All students are required to attend chapel exercises; all male students are required to attend military drill. Attendance upon class work is under the control of the individual instructors. Any instructor may, without faculty action, exclude from examination any student who has been absent from 20 per cent. of the exercises of any class under his charge.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No

student shall receive his registration card or attend classes until his term bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay. No student shall be permitted to make changes in courses elected by him after one week from the time of his registration in each term, except by vote of the faculty and the payment of one dollar.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen or more than twenty-one credit hours per week of class-room work or its equivalent, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will

not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The thesis must be completed in typewritten and bound form by the Tuesday preceding Commencement and in the hands of the department concerned. The thesis shall be typewritten or printed upon standard thesis paper 8½ by 11 inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy shall be approved by the faculty, filed and left with the College Librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' course will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston and Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochere* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One-half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for 50,000 volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the botanical and zoological laboratories, the drawing-room and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor is the large hall used as an auditorium, two society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

LIBRARY BUILDING.

The library building now being erected has a frontage of seventy-six feet and a depth of sixty-five feet, not including the stack extension planned to give shelving room for sixty

thousand volumes. It is a two story building with granite basement and trimmings of Indiana sandstone. This building has been made possible by the generosity of Mr. Andrew Carnegie, and by an arrangement in accordance with which the College assumes the care of the Durham libraries and adds to its building fund a sum of money which Mr. Hamilton Smith, late of Durham, provided for a public library building.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity. The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical

laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, forge shop and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

THE ARMORY.

The armory is a brick building with granite trimmings. The main building is 61 x 99. It has a headhouse, on each corner of which is a tower. One tower is battlemented and is three stories high, to correspond with the headhouse roof, and has a slated peak. The headhouse, or portion of the building nearest the street is 31x46. In the basement of the main building are two bathrooms, one 16x22, containing two shower baths to be used by the faculty and visiting teams. The other bathroom on this floor, size 12x16, is for the use of the students and contains five shower baths; adjoining this is a locker room, 28x30; a drying-room, 5x15; a toilet-room, 8x12, and a room, 8x28, for gymnasium supplies. As this does not take up all the basement floor, there is a space, 37x52, reserved for a swimming pool, bowling alley, ball cage, etc., to be completed at some future time.

On the first floor of the main building is the drill hall or gymnasium, size 58x97, with a balcony in the second story, which furnishes a running track six feet wide.

On entering the building, from the street, there is an office on the right, to be devoted to the uses of the professor of military science, one for the physical culture director, and a private office in the tower. To the left of the hallway is a military lecture room.

On the second floor of the headhouse are the College Club rooms, one 20x43, and the other 10x16. These are fur-

nished with billiard and pool tables; a piano presented to the College Club by the College Alumni Association; easy chairs and window seats, all in mission style furniture.

The equipment of the gymnasium includes chest weights; dumb bells; Indian clubs; wands; bucks; horses; horizontal and parallel bars; traveling rings; ladders; punching bags; etc.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARNS.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about $10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommodate 56 head of cattle. The basement of the L contains pig

pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently modeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have

ground beds and are adapted for forcing vegetables. The remaining houses have raised beds, excepting the centre of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flock of thoroughbred Southdowns, Dorset Horns, Shropshires and Merinos and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-rooms, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Grapes and pears are received from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varieties of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for indentification and study in the laboratory for sometime after field conditions have gone by. The

orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings;

a shaft-governor, slide-valve engine; a direct acting steam pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 12 horse-power gas engine; a marine gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser, with a capacity of 2,000 lbs. per hour, fitted with a 5½x8x7 air pump; Bristol pyromoter reading to 2,800 degrees F.; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 66" return tubular boiler, with the 95 ft. brick stack are used for boiler tests and flue gas analysis, by means of the Orsat apparatus, pyrometers and thermometers reading to 1,000 F. The 66" boiler is also fitted with two forms of forced draught apparatus thus giving an opportunity for commercial tests with different grades of fuel, especially the cheaper grades. The ventilating fans and engines of the various buildings as well as the engines at the creamery, electrical laboratory and barn are available for testing. Opportunity is not only given for the student to test the engine or machine but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and

when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice. Each year the proprietors of a nearby mill allow the class in valve gears to take exercises in valve setting on their 50 horse-power Corliss engine.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical

engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and

the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics. deficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the 500-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete 55-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter and transformer.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. This workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, and a small hand-driven metal planer.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay

furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoological laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have

been made from various sources. Many specimens are being collected to illustrate zoology, especially entomology.

LIBRARY.

The library of the college consists of about 12,000 bound volumes and 6,000 pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about 8,000 well-selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

These libraries are to be placed in the new library building which will be ready for occupancy at the beginning of the next college year. See page 31.

This building is to give liberal provisions for reference and research work. While the large part of the books are to be placed in the three story stack extension, shelving room for 5,000 volumes is to be provided in the large reference room in the main building. There is also a provision for the future in the second story rooms which can be used for department libraries when the reference room proves inadequate.

FOUR-YEAR COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoology, a considerable proportion of his time during the rest of his course being given to these sub-

jects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German will be required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training

in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming overcrowded the number of students taking this course is limited to six in each class. These six are chosen in the early part of the Sophomore year from among those who have applied. Fitness to become successful chemists will alone determine the choice made.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely during the fall and spring terms, the former having special reference to the duties of the line.

The organization is a battalion of two companies, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished rifles and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty and may at other times provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed $16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class, all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the military secretary of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register

REQUIREMENTS FOR ADMISSION TO FOUR-YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group	A		3 units
	B		1 unit
	C		2 units
	D	(Physics and Botany)	2 units
	E		2 units
			10 units
		(Optional)	4 units

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group	A		3 units
	B		2 units
	C		2 units
	D	(Physics)	1 unit
	E		2 units
			10 units
		(Optional)	4 units
Total			14 units

ENGINEERING AND CHEMICAL COURSES.

Required Group	A	3 units
	B	1 unit
	C	3 units
	D (Physics)	1 unit
	E	2 units
		10 units
	(Optional)	4 units
Total		14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1907 and 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form and struc-

ture; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1907 and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

GROUP B.

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. If one unit is offered it may be for either American History or Ancient History. If two or more units are offered, one unit must be for American History and one for Ancient History. In case one year has been given to American History and two years to Grecian and Roman History, either with or without other Ancient History, credit will be given for three units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's Students' History, or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek History, Allen's Roman People, Myers' Rome and Morey's Outlines of Roman History.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Harding's Essentials of Mediæval and Modern History with the collateral work, or Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of 50 plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

—1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.
—½ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.
—½ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.
—½ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.
—½ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Collar's First Year German (Ginn & Co.); Kaiser and Monteser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn &

Bacon); Carruth's German Reader (Ginn & Co.); Stern's Geschichten vom Rhein (Com. Bk. Co.).

2. Hillern, Hoher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Baumbach's Der Schwiegersohn; Gerstacker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

—2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Fraser & Squair's French Grammar (Heath); Laboulaye, Contes Bleus (Heath); Colin, Contes et Saynetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

—2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.

—2 units.

Virgil, six books.
Cicero, six orations.

—2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

—2 units.

In place of examinations, certificates will be received from approved preparatory schools in New England. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements *in full;* in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes exceptions in more than a third of the work required for admission to any course, or if the certificate makes *any* exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR-YEAR COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zootechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

PROF. TAYLOR.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other. The course is given to the First Year Two-Year Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Two-Year students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape and other forage crops. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Two-Year Students.

Three exercises per week. W.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Asst. Prof. Shaw.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including a discussion of inbreeding, crossing and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Two-Year Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. This course must be preceded by Course 11. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Two-Year Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation

of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1905. Elective for Agricultural Seniors.

Four exercises per week. F.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock and the raising of poultry. It is a general elementary course especially arranged for the First Year Two-Year Students.

Three exercises per week. F.

Agriculture 19. Breeds of Cattle and Sheep.

Lectures and recitations upon the origin, history, characteristics, adaptability and management of the different breeds of cattle and sheep. In the study of cattle the beef breeds are considered as to the demands of the market, and the preparation of cattle for sale and exhibition; the dairy breeds are studied from the standpoint of milk and butter production and the selection of individuals for the dairy herd.

In the study of sheep particular attention is given to their care under various conditions, the raising of early lambs and the different grades, uses and value of wool. One afternoon each week for judging the different breeds.

For Agricultural Sophomores and Second Year Two-Year Students.

Three exercises per week. F.

Agriculture 20. Breeds of Horses and Swine.

Lectures and recitations upon the origin, history, characteristics and management of the different breeds. The breeding and classification of horses for the market; training and the proper methods of harnessing and hitching. The preparation of swine for exhibition; the influence of different kinds of food upon pork production. One afternoon each week for judging and scoring.

For Agricultural Sophomores and Second Year Two-Year Students.

Three exercises per week. S.

Agriculture 21. Poultry.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the subject of breeding and feeding; the location and building of poultry houses; a study of incubators and brooders; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Elective for Agricultural Seniors and Second Year Two-Year Students.

Two exercises per week. W.

RURAL ENGINEERING AND FARM ECONOMY.

PROF. TAYLOR.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

Asso. Prof. Brooks.

1. Introductory Botany.

A study of the general structure and the life processes of plants by means of recitations and laboratory work. For First Year Two-Year Students.

Three exercises per week. F.

2. Cryptogamic Botany.

Recitations and laboratory work on a number of lower forms of plant life. Open to First Year Two-Year Students who have completed Course 1.

Three exercises per week. W.

3. Structural Botany.

A study of structure and reproduction in the higher plants; plant societies and plant families. Recitations, lectures and laboratory work. Open to First Year Two-Year Students who have completed Course 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures, recitations and laboratory work of some of the more important fungous diseases and the means of preventing their injuries. For Second Year Two-Year Students.

Three exercises per week. F.

5, 6, 7. Advanced Botany.

Three exercises per week for the senior year. Arranged to suit individual needs of those who have taken Courses 8 to 14.

8. Plant Physiology.

Lectures and laboratory studies on plant structures as related to plant activities. For Agricultural and General Freshmen.

Three exercises per week. S.

9. Cryptogamic Botany.

A study of a representative series of cryptogams, beginning with the lower and advancing to the higher forms. Special at-

tention will be given to parasitic fungi. For Agricultural and General Sophomores.

Three exercises per week. F.

10. Plant Morphology.

A continuation of the series of plant forms begun in Course 6, including a study of vascular cryptogams, gymnosperms and angiosperms. Lectures and laboratory studies. Open to students who have completed Courses 5 and 6.

Three exercises per week. W.

11. Ecology and Taxonomy.

A study of the higher plants represented in the local flora, with reference to their environment; plant societies and plant families. Lectures, laboratory and field work. Open to students who have taken Course 10.

Two exercises per week. S.

12. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Open to students who have completed Course 11.

Three exercises per week. F.

13. Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work. Open to students who have completed Course 11.

Three exercises per week. W.

14. Advanced Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration, irritability and the influences that affect them. Open to students who have completed Course 11.

Three exercises per week. S.

CHEMISTRY.

ORGANIC CHEMISTRY—PROF. MORSE.

INORGANIC CHEMISTRY—PROF. PARSONS, MR. JAMES, MR. CLARK.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week. F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject must be preceded by Chemistry Courses 1, 2 and 3. For Agricultural and Chemical Juniors; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Juniors; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Chemical Engineering Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years.

Open only to students who have completed Chemistry 4.

Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.

Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.

One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13 and is open to students who have completed Courses 1, 2 and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Three exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.
Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Chemical Engineering Course who are in advance of their course.

22. Elementary Applications.

An elementary course arranged for the First Year students in the Two-Year Course in Agriculture with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc.

Three exercises per week. S.

DAIRYING.

MR. TINKHAM.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the various tests and their application on the dairy farm and in the creamery or milk inspector's laboratory. For Agricultural Juniors, and First Year Two-Year Students.

Three exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening

cream. For Agricultural Juniors and students in Ten-Week Course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors and Two-Year Students.

Open to those who have completed Course 1.

Three exercises per week. S. and F.

4. Butter-making.

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Courses 1 and 3.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts and will be required to present sample accounts covering various periods. Plans of dairy buildings, creameries and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-Year Students.

Five exercises per week. S.

8. Practical Work.

For students in Ten-Week Course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. For students in the Ten-Week Course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations and lectures. For students in the Ten-Week Course in Dairying.

One exercise per week. W.

DRAWING.*

Asso. Prof. Putnam.

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

19. Industrial Drawing.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints. For all Freshmen.

Two exercises per week. F.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

20. Mechanical Drawing.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For all Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternating with shop-work on Wednesdays.

21. Descriptive Geometry.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen.

Three exercises per week. S.

23. Descriptive Geometry.

Continuation of 21. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Sophomores.

Two exercises per week. F.

24. Elementary Machine Drawing.

For Chemical Sophomores.

Two exercises per week. F.

25. Elementary Machine Drawing.

Mechanism drawing; detail and assembly drawing of simple machines.

For Engineering Sophomores.

Two exercises per week. W.

26. Machine Drawing.

Continuation of 25.

For Engineering Sophomores.

Five exercises per week. S.

27. Machine Drawing.

Working drawings of various machines and machine tools.

For Engineering Juniors.

Two exercises per week. F.

28. Elementary Machine Design.

For Engineering Juniors.

Two exercises per week. W.

29. Steam Engine Design.

Engine details and valve-gear problems. For Engineering Juniors.

Two exercises per week. S.

30. Machine Design Drawing.

Completion of 29; the Stephenson link-motion as applied to the locomotive. 30:—The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of Applied Mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors who have taken Drawing 29 and Mechanical Engineering 4-6 and 8-11.

Five exercises per week. F.

31. Mill Engineering Drawing.

Figuring for strength of flooring, beams, brick and stone-work in a mill storehouse, with drawing of same. For Mechanical Engineering Seniors.

Four exercises per week. W.

32. Mill Design.

Principles and practice of cotton mill construction. Details and processes of cotton spinning and cotton machinery. The planning and laying out of a complete mill of given spindle capacity, with regard to location and number of machines, transmission and distribution of power, light, fire protection, etc.

Three exercises per week. S.

33. Free-hand Drawing.

Light and shade drawing from casts and still life; charcoal work. Elective for General Course Sophomores.

Two exercises per week. W.

34. Free-hand Drawing.

Pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. S.

35. Architectural Drawing.

Studies of architectural detail and historic ornament.
Elective for General Course Juniors.

Three exercises per week. F.

36. Architectural Drawing.

Continuation of 35.
Elective for General Course Juniors.

Two exercises per week. W.

37. Architectural Drawing.

The design of a building, with details of ornament.
Elective for General Course Juniors.

Two exercises per week. S.

38. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. F.

39. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. W.

40. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. S.

NOTE—Courses 38-40 will be given first in 1906-1907, and will correspond to the third year's work in a course of Architecture.

ELECTRICAL ENGINEERING.

PROF. NESBIT, MR. ADAMS.

Course numbers 1 to 40, inclusive, are reserved for subjects taken by Electrical Engineering Students; 41-50 for Mechanical Engineering Students; 51-60, Chemical Engineering Students; and 61-70 for Agricultural and General Course Students.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week. F.*

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. 1, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, *three exercises per week. W.*

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Electrical Engineering Juniors, first term, *three exercises per week for five weeks.* At the completion of this course the time is given to Electrical Engineering 6.

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Mascart et Joubert, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 4 and 5.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *three exercises per week first five weeks; six exercises per week last five weeks. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6,

7, 8 and 9 are based. Reference is also made to other standard works.

7. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *five exercises per week. F.*

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

8. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *six exercises per week. W.*

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week. W.*

Steinmetz's text is used in class.

10. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week first five weeks. S.*

20. The Telephone.

Three exercises per week for six weeks. F.

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

21. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's "American Telegraphy."

22. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

23. Electric Lighting.

Three exercises per week for the first six weeks. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

24. Power Distribution for Electric Railroads.

Three exercises per week for the last four weeks. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance.

In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

25. High Tension Power Transmission.

Three exercises per week for the last five weeks. S.

The text-book used is "High Tension Power Transmission," a set of papers compiled by the American Institute of Electrical Engineers, and published by the McGraw Co., N. Y. city.

31. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves of motors. The determination of the candle power of incandesent and arc lmps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's "Electrical Testing in Physics and Electrical Engineering," Nichols' "Laboratory Manual in Physics and Applied Electricity," and Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

32. Electrical Laboratory.

Two exercises per week. W.

33. Electrical Laboratory.

Two exercises per week. S.

34. Thesis.

Three exercises per week. S

A deposit of fifteen dollars is made by each student electing Thesis, and where apparatus is constructed as a part of a thesis, it shall remain the property of the department.

41. The Elements of Electrical Engineering.

Courses 41 to 50 inclusive are for Mechanical Engineering Students.

Mechanical Engineering Juniors, *three exercises per week F.*

Franklin and Estey's text, "The Elements of Electrical Engineering," is used in Courses 41 to 42. These courses are similar, though briefer than 1 and 2.

42. The Elements of Electrical Engineering; a continuation of 41.

Three exercises per week. W.

43. Alternating Currents.

Three exercises per week. S.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 41 and 42. The text-book used is Franklin and Williamson's "Alternating Currents."

44. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

45. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting and electric railroads, and power transmission, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 43 and 44. The subjects taken up in this course are more briefly treated than in Courses 20 to 24, inclusive.

51. Industrial Electricity.

Courses 51 and 52 are taken by Technical Chemistry Seniors.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and

secondary batteries, arc and incandescent lamps and the general principles of electrical distribution.

52. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

61. Industrial Electricity.

Course 61 is elective for Agricultural and General Course Seniors.

Three exercises per week. F.

This course is elective for Seniors of the Agricultural and General Courses. In an elementary way, study is made of such subjects as the dynamo, motor, transformer, telephone, telegraph, storage batteries, incandescent and arc lighting, and electric railroads.

ENGLISH.

Asst. Prof. Harrison.

*1. Rhetoric and Composition.

Two exercises per week. F.

*2. Rhetoric and Composition.

Two exercises per week. W.

*3. Rhetoric and Composition.

Two exercises per week. S.

4. English Literature.

Chaucer to Wordsworth. Lectures and readings. Special attention will be given to the theory of the drama. Open to Juniors.

Two exercises per week. W.

* Courses 1, 2 and 3, required of all Freshmen, are continuous and dependent, 2 being open to all who have passed 1, and 3 to all who have passed 2.

Theme writing, book reviews, the theory of composition and an introduction to the principles of literary criticism.

5. Wordsworth to Browning.

Text-book, lectures and readings. Special attention will be given to the work of Tennyson and Browning. Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

7. Course in Debating.

This is intended to give the student a knowledge of the principles of argumentation and to accustom him to speaking in public.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Three exercises per week. F.

FORESTRY.

Prof. Hall.
Mr. J. K. Shaw.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations and forest trees.

For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting forest products. The physical properties of woods and forest botany and entomology are here further considered. Seminary and laboratory work.

Elective for those students showing special ability in Course 1.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for those having had Course 2.

Three exercises per week. S.

FRENCH.

ASSO. PROF. WHORISKEY.

Courses 1, 2 and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation and Composition continued.

Three exercises per week. W.

6. French Prose, History and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine and Moliere.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

Courses 10, 11 and 12 are to be given in 1907-1908 and then in alternate years with 7, 8 and 9. Announcement will be made later with regard to the authors to be studied.

GEOLOGY.

1. Mineralogy.—Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.—Prof. Sanderson.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Seniors.

Open to those who have completed Zoology 5 and Geology 1.

Four exercises per week. F.

GERMAN.

Asso. Prof. Whoriskey.

Courses 1, 2 and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5 and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.
Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.
Three exercises per week. W.

3. Reading, Translation and Composition; Sight Translation. Dictation.
Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.
Three exercises per week. F.

5. German Prose of the Nineteenth Century continued. Composition, outside reading.
Three exercises per week. W.

6. Scientific German. Composition.
Three exercises per week. S.

*7. Goethe, His Life and Works.
Three exercises per week. F.

*8. Goethe (continued).
Three exercises per week. W.

*9. Goethe (continued).
Three exercises per week. S.

* Given in 1907-1908.

10, 11 and 12. Schiller, His Life and Works. Given in 1906 and 1907.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation and paraphrasing the assigned texts.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 offered in 1905-'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 10 are open only to those who have passed in History and Constitution of the United States.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

7. American History to close of Colonial Period.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1738 to 1820.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. W.

9. Political and Constitutional History of the United States, 1820 to 1846.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

10. Political and Constitutional History of the United States since 1846.

For General Course Seniors.

Three exercises per week. F.

HORTICULTURE.

Prof. Hall.

Mr. J. K. Shaw.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field.

For Agricultural Freshmen.

Two exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores and Second Year Two-Year Students.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and First Year Two-Year Students.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work.

For Agricultural Juniors and Second Year Two-Year Students.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations and laboratory work. The culture and uses of ornamental plants are studied together with their history, classification, characteristics, propagation and uses on private and public grounds.

For Agricultural Juniors and Second Year Two-Year Students.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors. Elective for Two-Year Students.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. S.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

Preceded by Courses 6 and 7.

Two exercises per week. S.

9. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Open to those having completed the first five courses in Horticulture.

Three exercises per week. F.

MATHEMATICS.

PROF. PETTEE.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

5. Analytical Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For First Year Two-Year Students.

Two exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.—Prof. Pettee.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

Prof. Read, Asst. Prof. Hancock.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Freshmen.

Open only to those who have taken Mathematics 1-24, Drawing 19-20.

Three exercises per week. S.

2. Mechanism.

For Engineering Sophomores.

Continuation of 1.

Two exercises per week. F.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. W.

4. Mechanics of Engineering.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive, and Physics 1.

Two exercises per week. F.

5. Mechanics of Engineering.

Continuation of 4.

Four exercises per week. W.

6. Mechanics of Engineering.

Continuation of 4 and 5.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Mathematics 1-7, Physics 1 and 2, Drawing 19-21.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S.

11. Materials of Construction.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors.

Continuation of Courses 4-6.

Four exercises per week. F.

Course 11 is open only to those who have taken Courses 4, 5, 6 and 7.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6.

Three exercises per week. F.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 10 and must have taken or are taking 11 and 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Open only to those who have taken 4-6, 8-10 and 14.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Open only to those who have taken 4-6, 8-10, 14, 15 and 17.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

The design of boilers, boiler setting details, shafting, couplings and pulleys, with regard to the principles of Applied Mechanics and strength of materials. Given as Machine Design Drawing. See Drawing 30.

Course 19 is open only to those who have taken Courses 4-6 and 8-11, and Drawing 29.

20. Contracts and Specifications.

Recitations and lectures on the laws and forms of engineering contracts and specifications. Students in this course are required to draw up specifications, write a contract and make estimates on a piece of engineering work.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Mill Design.

Given as Drawing 32.

Three exercises per week. S.

22. Elementary Steam Engineering.

For Engineering Sophomores.

Two exercises per week. S.

23. Hydraulic Motors.

For Mechanical Engineering Seniors.

Principles of design and operation of water power plants.

Course 23 is open only to those who have taken Course 12.

One and one-half exercises per week. W.

24. Concrete-Steel Construction.

For Mechanical Engineering Seniors.

A study, from the current engineering papers, of the more recent developments in the design and construction of concrete-steel foundations, dams and buildings.

Course 24 is open only to those who have taken Course 11.

One and one-half exercises per week. W.

Course 23 is given the first five weeks and course 24 the last five weeks.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

Each male student, unless a member of the Senior class, or physically unfit, is required to drill and attend recitations in military science.

COURSE OF INSTRUCTION.

1. Military Drill.

Infantry drill regulations through the school of the battalion in close and extended order.
Advance and rear guards.
Outposts.
Marches.
Ceremonies; battalion review, parades and guard mounting.
Calisthenics and gymnastics.
Rifle practice.
First aid to the injured.
Signalling.

Two exercises per week.

2. Military Science.

Infantry Drill Regulations covered by practical instruction; Manual of Guard Duty; Small Arms Firing Regulations; Articles of War; enlistment and discharge papers; morning reports; field returns; muster rolls; rosters; ration returns; requisitions; prop-

erty returns, etc., with lectures on military subjects, notes upon which are to be taken for subsequent examination.

One exercise per week.

3. Army Organization and Administration.

Lectures and preparation of military papers.
Elective for Seniors only.

One exercise per week.

PHILOSOPHY.

ASST. PROF. HARRISON.

1. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart.

Open to Sophomores.

Two exercises per week. W.

3. Psychology.

An introduction to the study of the mental life. The practical needs of the student are related as closely as possible to the work of the course.

Open to Juniors and Seniors.

Three exercises per week. F.

4. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's "Philosophy of Education."

Open to Juniors and Seniors.

Three exercises per week. W.

5. Logic.

A study of the methods, fallacies and aims of human thinking. A preparation for work in science and in philosophy.

Open to Sophomores.

Two exercises per week. S.

7, 8 and 9. Advanced Pedagogy.

A one-hour course throughout the year. Some important work on the practice of education is made the basis for study. Free discussion of the teacher's problems is made a part of the class exercises. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for the practice teaching. The permission of the instructor is required before electing this course.

10. Herbartian Psychology.

This course attempts to make a thorough study of the system of Herbart and to relate his contributions to the problems of present-day teaching.

Open to Juniors and Seniors who have passed Course 3.

Three exercises per week. S.

11. Advanced Psychology.

This course is a natural continuation of Course 3. The emotional and volutional aspects of the mind are studied more carefully than is possible in the elementary course.

Open to all students who have passed Course 3.

Three exercises per week. F.

PHYSICS.

PROF. NESBIT, MR. ADAMS.

Courses 1 to 8 are taken consecutively by students of the Electrical and Mechanical Engineering Courses. Students in the Chemical Engineering Course take Courses 1 to 5, 7

and 8. Students in the course in Agriculture take Courses 1 to 4, and such part of Course 5 as may be given in the Winter term. They may also elect in the Senior year, Electrical Engineering 61, as a continuation of Physics 5. Students in the General Course are required to take either Course 1 or 21, and they may elect either Courses 21 to 25 or 1 to 5.

Course numbers 1 to 20, inclusive, are reserved for the subjects taken by Engineering students; 21 to 30, inclusive, for the General Course; 31 to 40 for the Agricultural Course Two-Year Students.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

The Electrical and Mechanical Students take up the use of the Slide Rule in connection with this course. Slide Rules should not be bought except upon advice of the instructor.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as a text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustra-

tive of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's "Elementary Lessons in Electricity and Magnetism" is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 to 23.

6. Elements of least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements.

A laboratory fee of five dollars per term is required in Courses 7 and 8 to cover breakages, etc. Any unexpended balance is refunded to the student at the close of the college year.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself.

Physics 21 to 25 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. Their completion does not prepare the student to enter Courses 7 and 8.

21. Mechanics.

General Course Freshmen, three exercises per week. S.

This is a briefer course than Physics 1 and aims to meet the needs of the student wishing to obtain some knowledge of physical phenomena and its laws.

22. Heat.

Elective for General Course Sophomores, three exercises per week for six weeks. F.

23. Light.

Elective for General Course Sophomores, three exercises per week for five weeks. F.

24. Sound.

Elective for General Course Sophomores, three exercises per week for the last four weeks. F.

25. Electricity and Magnetism.

Elective for General Course Sophomores, three exercises per week throughout the term. W.

Physics 41 and 42 are intended to acquaint the student with the fundamental principles and facts of physics.

41. Elementary Physics.

First year Two-Year course in Agriculture, *three exercises per week. S.*

42. Elementary Physics.

Second year Two-Year course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 41.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1906-'07.

Open only to those who have taken Course 1.

Three exercises per week. W.

5. Socialism and Social Reform.

Readings, recitations and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in the year 1906-'07.

Open only to those who have taken Course 1.

Three exercises per week. S.

6. International Law.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week. S.

7. Public Finance.

For Agricultural Seniors and General Juniors and Seniors. Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

SHOP WORK.

ASST. PROF. HANCOCK, MR. BROWN.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Pattern Making and Foundry.

A continuation of 1
For Chemical and Engineering Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternate with Drawing on Wednesdays.

3. Pattern Making and Foundry.

For Chemical and Engineering Freshmen.

Two exercises per week. S.

4. A course in Forging, giving the student exercises in Upsetting, Drawing, Forming and Welding.

For Mechanical and Electrical Engineering Sophomores.

Two exercises per week. F.

5. A course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. W.

6-11. A Course in Machine Shop Tools and Methods.

For Mechanical Engineering Juniors and Seniors.

Considerable time is given to tool room work in the making of fine tools, such as arbors and gauges; grinding both external and internal; tempering; the use of the electric pyrometer in connection with tempering and annealing; the use of the milling machine in connection with spiral and gear cutting; bench work in fine fitting; experimental work as to different cutting speeds and angles for various forms of tools as well as with different grades of tool steel, including high speed steel. Metallography of the heat treatment of steel.

A portion of the time is taken up in the reading and discussion of the various engineering periodicals and excursions are made to large shops so that the student has an opportunity to see the above processes in practical operation.

6. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. F.

7. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. W.

8. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. S.

9. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. F.

10. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. W.

11. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. S.

12. Wood Work.

For First Year Two-Year Students.

Two exercises per week. W.

13. Iron Work.

For Second Year Two-Year Students.

Two exercises per week. S.

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. F.

15. Special Shop Work.

From one to four exercises per week. W.

16. Special Shop Work.

From one to four exercises per week. S.

17. Forging.

For Agricultural and General Course Freshmen.

Two and one-half exercises per week. W.

SPANISH.

Asso. Prof. Whoriskey.

Spanish 1, 2 and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. F., W., S.

Elective for General Course Students in Sophomore, Junior or Senior year.

ZOOLOGY.

Prof. Sanderson, Dr. Headlee.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page 37.

1. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores.

Three exercises per week. F.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Four exercises per week. F.

6. Principles of Zoölogy.

The history, fundamental principles, problems and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors or Seniors having completed previous courses. Given in alternate year with Course 17.

Three exercises per week. W.

7. Comparative Zoölogy.

Lectures and reading upon the comparative anatomy and physiology of animals. For Agricultural and General Juniors and Seniors having completed previous courses. Alternates with Course 6.

Three exercises per week. W.

8. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors or Seniors. Alternate with Course 9.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests.

For Agricultural Juniors or Seniors having completed Course 3. Alternate with Course 7.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12 and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

14. Elementary Zoölogy.

The structure and habits of the invertebrate and lower vertebrate animals, with special study of insects. Recitations and laboratory dissections of typical forms. For First Year Two-Year Students.

Five exercises per week first five weeks and three exercises per week balance of term. F.

15. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For First Year Two-Year Students completing Course 1.

Five exercises per week. W.

16. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

One hour per week through the year.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Attendance is required of all students at Chapel exercises.

Military drill: Fall and Spring terms, M. and F., 11 to 12.30 p. m. Winter term, T. and Th., 10 to 12. Attendance is required of all male students, except Seniors, for whom it is elective.

FRESHMAN YEAR.

For all Four-Year Courses.

FALL TERM.

	Exercises.
Rhetoric—English 1	2
Algebra—Mathematics 1	5
Wood Work—Shop Work 1	2
Drawing—Drawing 19	2
†History—History 1 or 4	3
French—French 1 / or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
Solid Geometry—Mathematics 2	3
Military Science	1
Military Drill	1

WINTER TERM.

Rhetoric—English 2	2
Trigonometry—Mathematics 3	4
§Pattern Making and Foundry—Shop Work 2	2½
‡Drawing—Drawing 20	2½
†History—History 2 or 5	3
French—French 2 / or German—German 2	3

† History is taken by women in place of Shop Work. It is also open to students who are prepared for advance work.

§ Engineering and Chemical courses take Shop Work 2; others Shop Work 17.

‡ For students taking History, two exercises per week in Drawing.

Inorganic Chemistry—Chemistry 2	3
Military Science	1
Military Drill	1
Forging—Shop Work 17	2½

SPRING TERM.

Rhetoric—English 3	1
†Surveying—Mathematics 4	3
Mechanics—Physics 1	3
‡Mechanics—Physics 21	3
†Botany—Botany 8	3
†Wood Work—Shop Work 3	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 21	3
†History—History 3 or 6	3
French—French 3 or German—German 3	3
†Organic Chemistry—Chemistry 3	3
Military Science	1
Military Drill	1
Mechanism—Mechanical Engineering 1	3

COURSES IN AGRICULTURE.

Sophomore Year.

FALL TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Heat—Physics 2, eight weeks. Light—Physics 3, seven weeks	3
Horticulture 2	1
Botany 9	3
Agriculture 19	3
Military Science	1
Military Drill	1

† Students in the Engineering Course take Drawing and Shop Work. Students in Chemical Engineering also take Organic Chemistry. Students in the Agricultural Course take Botany, Surveying, Horticulture, and Organic Chemistry. Students in the General Course take Botany and History, and elect between Surveying and Organic Chemistry.

‡ General Course students elect either Physics 1 or 21.

WINTER TERM.

German 5	3
Chemistry 4	3
Zoölogy 4	3
Electricity and Magnetism—Physics 5, five weeks Sound—Physics 4, five weeks	3
Horticulture 3	3
Botany 10	3
Military Science	1
Military Drill	1

SPRING TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 20	3
Botany 11	2
Military Science	1
Military Drill	1

Junior Year.

FALL TERM.

*Botany 12 or	3
*Zoölogy 5	4
Chemistry 6	3
Dairying 1 and 3	5
Horticulture 4	3
Agriculture 2	3
Military Science	1
Military Drill	1

WINTER TERM.

†Botany 13 or	3
†Zoölogy 6 or 17 or	3
†Agriculture 11	4
Chemistry 7	2
English 4	2
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
Military Science	1
Military Drill	1

*Elect either Zoology 5 or Botany 12.

†Elect one of these three or some other three-hour scientific course.

SPRING TERM.

†Agriculture 12 or	3
†Zoölogy 7, 9 or 10 or	3
†Botany 14	3
English 5	2
Geology 1	3
Horticulture 5	3
Agriculture 4	3
Agriculture 13	4
Military Science	1
Military Drill	1

NOTE.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

†Elect one of these three or some other three-hour scientific course.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11 and Agriculture 12.

SENIOR YEAR.

FALL TERM.

(Required.)

	Exercises per week.
Geology 2	4
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)

Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)

Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Descriptive Geometry—Drawing 23	2
Heat—Physics 2, eight weeks. Light—Physics 3, seven weeks	3
German—German 4	3
Forge Shop—Shop Work 4	2
Mechanism—Mechanical Engineering 2	2
Chemical Laboratory—Chemistry 5	2
Military Science	1
Military Drill	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
Machine Drawing—Drawing 25	2
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
German—German 5	3
Machine Shop—Shop Work 5	2
Mechanism—Mechanical Engineering 3	2
Chemical Laboratory—Chemistry 5	2
Military Science	1
Military Drill	1

SPRING TERM.

Defferential Calculus—Mathematics 7	5
Electricity and Magnetism—Physics 5	3
German—German 6	3
Machine Drawing—Drawing 26	5
Elementary Steam Engineering—Mechanical Engineering 22	2
Military Science	1
Military Drill	1

COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Theoretical Electricity—Electrical Engineering 4	3
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1	3
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1
Military Drill	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Theoretical Electricity—Electrical Engineering 5	3
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1
Military Drill	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3	6
*Theoretical Electricity—Electrical Engineering 6	
Engine Drawing—Drawing 29	2
Military Science	1
Military Drill	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Theoretical Electricity—Electrical Engineering 7	6
Mechanical Laboratory—Mechanical Engineering 14	2
The Telephone, Electrical Engineering 20, six weeks	3
The Telegraph, Electrical Engineering 21, six weeks	
Storage Batteries, Electrical Engineering 22, three weeks	
Hydraulics—Mechanical Engineering 12	3
Electrical Laboratory—Electrical Engineering 31	2
**Military Drill	1

WINTER TERM.

Theoretical Electricity—Electrical Engineering 8	6
Alternating Current Phenomena—Electrical Engineering 9	3
Electrical Laboratory—Electrical Engineering 16	2
Electrical Lighting—Electrical Engineering 23, six weeks	3
Power Distribution for Electric Railroads—Electrical Engineering 24, four weeks	
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
**Military Drill	1

SPRING TERM.

Alternating Current Phenomena—Electrical Engineering 10, first five weeks	3
High Tension Power Transmission—Electrical Engineering 25, last five weeks	

* See assignment of time under Electrical Engineering 6, in Description of Subjects.

**Elective.

Electrical Laboratory—Electrical Engineering 33, first five weeks	2
Political Economy—Political Science 1	5
Mechanical Laboratory—Mechanical Engineering 16	2
Gas and Hot Air Engines—Mechanical Engineering 18	3
Thesis—Electrical Engineering 34	3
**Military Drill	1

COURSE IN MECHANICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
The Elements of Electrical Engineering 41	3
Iron Work—Shop Work 6	2
Machine Drawing—Drawing 27	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1
Military Drill	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
The Elements of Electrical Engineering—Electrical Engineering 42	3
Iron Work—Shop Work 7	2
Elementary Machine Design—Drawing 28	2
Debating—English 7	1
Military Science	1
Military Drill	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Alternating Currents—Electrical Engineering 43	3
Iron Work—Shop Work 8	2
Engine Drawing—Drawing 29	2
Military Science	1
Military Drill	1

**Elective.

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Hydraulics—Mechanical Engineering 12	3
Machine Design—Drawing 30	5
Mechanical Laboratory—Mechanical Engineering 14	2
Iron Work—Shop Work 9	2
Alternating Currents, Electrical Engineering 44, first eight weeks Applications of Electricity, Electrical Engineering 45, last seven weeks	3
**Military Drill	1

WINTER TERM.

Mill Design—Drawing 31	4
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
Iron Work—Shop Work 10	1
Specifications and Contracts—Mechanical Engineering 20	3
Thesis	2
*Hydraulic Motors—Mechanical Engineering 23	1½
*Concrete Steel Construction—Mechanical Engineering 24	1½
**Military Drill	1

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18	3
Mechanical Laboratory—Mechanical Engineering 16	2
Political Economy—Political Science 1	5
Iron Work—Shop Work 11	2
Thesis	3
Mill Design—Drawing 32	3
**Military Drill	1

COURSE IN CHEMICAL ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Elementary Machine Drawing—Drawing 24	2
German—German 4	3

* Hydraulic Motors is given 3 exercises per week the first five weeks and Concrete-Stone Construction 3 exercises per week the last five weeks.

**Elective.

Chemical Laboratory—Chemistry 4	5
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Military Science	1
Military Drill	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
German—German 5	3
Chemical Laboratory—Chemistry 10	7
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
Military Science	1
Military Drill	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Mineralogy—Geology 1	3
German—German 6	3
Organic Chemistry—Chemistry 8	2
Chemical Laboratory—Chemistry 11	3
Electricity and Magnetism—Physics 5	3
Military Science	1
Military Drill	1

Junior Year.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6	3
Organic Chemistry—Chemistry 9	3
French—French 4	3
Mechanics of Engineering—Mechanical Engineering 4	2
Graphic Statics—Mechanical Engineering 7	2
Chemical Laboratory—Chemistry 11	4
Military Science	1
Military Drill	1

WINTER TERM.

Chemical Laboratory—Chemistry 11	4
Industrial Chemistry—Chemistry 13	2
Mechanics of Engineering—Mechanical Engineering 5	4
French—French 5	3
Physical Laboratory—Physics 7	3
Debating English 7	1
Military Science	1
Military Drill	1

SPRING TERM.

Chemical Laboratory—Chemistry 11	4
Metallurgy—Chemistry 14	2
Mechanics of Engineering—Mechanical Engineering 6	5
French—French 6	3
Physical Laboratory—Physics 8	3
Military Science	1
Military Drill	1

SENIOR YEAR.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21	8
Iron Work—Shop Work 5	2
Chemical Journals—Chemistry 12	1
Steam Engineering—Mechanical Engineering 8	4
Industrial Electricity—Electrical Engineering 51	3
**Military Drill	1

WINTER TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	8
Chemical Journals—Chemistry 12	1
Physical Chemistry—Chemistry 15	3
Industrial Electricity—Electrical Engineering 52	3
Chaucer to Wordsworth—English 4	2
**Military Drill	1

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	6
Chemical Journals—Chemistry 12	1
Assaying—Chemistry 19	1
Physical Chemistry—Chemistry 16	2
Political Economy—Political Science 1	5
Wordsworth to Browning—English 5	2
**Military Drill	1

GENERAL COURSE.

SOPHOMORE YEAR.

FALL TERM.

	Exercises per week.
Invertebrate Zoölogy—Zoölogy 1	3
German—German 4	3
*Botany—Botany 9	3
*Chemical Laboratory—Chemistry 4	3

**Elective.

*Heat and Light—Physics 2 and 3, or Physics 21, 22 and 23	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 5	5
*Spanish—Spanish 1	3
Military Science	1
Military Drill	1

*Elect 10 exercises.

WINTER TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
*Sound and Electricity—Physics 4 and 5 or Physics 25	3
*History—History 2 or 5	3
*General Entomology—Zoölogy 4	3
*Botany—Botany 10	3
*Differential Calculus—Mathematics 6	5
*Free-hand Drawing—Drawing 33	2
*Spanish—Spanish 2	3
*Philosophy 1	2
Military Science	1
Military Drill	1

*Elect 13 exercises.

SPRING TERM.

	Exercises per week.
Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 5	3
*History—History 3 or 6	3
*Economic Entomology—Zoölogy 3	4
*Botany—Botany 11	3
*Free-hand Drawing—Drawing 34	3
*Integral Calculus—Mathematics 7	5
*Philosophy 2	2
*Spanish—Spanish 3	3
Military Science	1
Military Drill	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science, Military Drill and English 7.

FALL TERM.

Psychology—Philosophy 3..... 3
French—French 4..... 3
American Political History—History 7..... 4
Chemistry of Plant Growth—Chemistry 6..... 3
Chemical Laboratory—Chemistry 4..... 3
Least Squares and Precision of Measurements—Physics 6.. 3
Architectural Drawing—Drawing 35..... 3
Differential Equations—Mathematics 8..... 2
Spanish—Spanish 1..... 3
Vertebrate Anatomy and Physiology—Zoölogy 5..... 4
Military Science..... 1
Military Drill..... 1

WINTER TERM.

French—French 5..... 3
American Political History—History 8..... 3
English Literature—English 4..... 2
Philosophy of Education—Philosophy 4..... 3
Money and Banking, or International Law—Political Science 4 or 6..... 3
Chemistry of Food and Nutrition—Chemistry 7..... 2
Chemical Laboratory—Chemistry 4..... 3
Physical Laboratory—Physics 7..... 3
Architectural Drawing—Drawing 36..... 2
Quaternions—Mathematics 9..... 2
Principles of Zoölogy or Comparative Anatomy——Zoölogy 6 or 17..... 3
Spanish—Spanish 2..... 3
Debating—English 7..... 1
Military Science..... 1
Military Drill..... 1

SPRING TERM.

French—French 6..... 3
Mineralogy—Geology 1..... 3
Logic, or Science of Thought—Philosophy 5 or 6..... 3
American Political History—History 9..... 2
Socialism or Finance—Political Science 5 or 7..... 3
English—English 5..... 2
Architectural Drawing—Drawing 37..... 3
Physical Laboratory—Physics 8.....3

Spanish—Spanish 3 3
Debating—English 7 1
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9 3
Military Science 1
Military Drill 1

Senior Year.

Sixteen exercises required; all elective.

FALL TERM.

Laws of Business—Political Science 2 } 5
Constitutional Law—Political Science 3 }
Psychology—Philosophy 3 3
Advanced Psychology—Philosophy 11 3
French—French 7 3
Literary Criticism—English 6 2
German—German 7 3
American Political History—History 10 3
Advanced Zoölogy—Zoölogy 11 4
Advanced Botany—Botany 5 or 12 3
Elementary Geology—Geology 2 4
Architectural Drawing—Drawing 38 3
Spanish—Spanish 1 3
Industrial Electricity—Electrical Engineering 61 3
Thesis Work 2
Military Drill 1

WINTER TERM.

Money and Banking, or International Law—Political Science 4 or 6 3
Philosophy 4 3
French—French 8 3
German—German 8 3
American Literature—English 8 3
Astronomy—Mathematics 10 4
Advanced Zoölogy—Zoölogy 12 3
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17 3
Advanced Botany—Botany 6 or 13 3
Architectural Drawing—Drawing 39 3
Spanish—Spanish 2 3
Thesis Work ..... 1 or 2
Military Drill 1

SPRING TERM.

American Literature—English 9	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Mathematics 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Philosophy 5 or 6	3
Advanced Zoölogy—Zoölogy 13	3
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9	3
Advanced Botany—Botany 7 or 14	3
Architectural Drawing—Drawing 40	3
Spanish—Spanish 3	3
Thesis Work	1 or 2
Military Drill	1

HOURS OF STUDY.

FRESHMAN CLASS FOR ALL

Term.	Day.	Section.	8-9	9-10	10-11
Fall.	Mon.	I	.....	Mathematics 1.....	.....
		II	.....	.....	Chemistry 1.....
	Tues.	I	German 1.....	French 1.....	Military Science...
		II	.....	Mathematics 1....	German 1.....
	Wed.	I	English 1.....	.....	Chemistry 1.....
		II	.....	Eng. 1 & Math. 1..	.....
	Thur.	I	German 1.....	French 1.....	Mathematics 2....
		II	.....	Mathematics 1.....	German 1.....
					Military Science ...
	Fri	I	English 1.....	History 1 or 4....	.....
		II	Military Science...	Eng. 1 & Math. 1..	Chemistry 1.....
	Sat.	I	German 1.....	French 1.....	Mathematics 2....
		II	.....	Mathematics 1.....	German 1.....
Winter	Mon.	I	.....	.....	{ Chemistry 2.....
		II	.....	.....	{ .....
	Tues.	I	German 2.....	French 2.....	Drill .....
		II	Military Science...	.....	German 2.....
	Wed.	I	Military Science...	English 2.....	{ .....
		II	English 2.....	History 2 or 5....	{ Chemistry 2.....
	Thur.	I	German 2.....	French 2.....	Drill .....
		II	.....	.....	German 2.....
	Fri.	I	English 2.....	Mathematics 3....	{ .....
		II	.....	English 2.....	{ Chemistry 2.....
	Sa	I	German 2.....	French 2.....	Mathematics 3.....
		II	.....	.....	German 2.....
Spring.	Mon.	I	Military Science...	History 3 or 6....	Physics 1.....
		II	Chemistry 3.....	Mech. Engin. 1....	.....
				Horticulture 1....	
	Tues.	I	{ German 3.....	French 3.....	Botany 8.....
		II	{	Drawing 21.....	Drawing 21.....
	Wed.	I	English 3.....	Mech. Engin. 1...	Physics 1.....
		II	Chemistry 3.....	English 3.....	.....
				Horticulture 1....	
	Thur.	I	{ German 3.....	French 3.....	Botany 8.....
		II	{	Drawing 21.....	Drawing 21.....
	Fri.	I	English 3.....	Mech. Engin. 1....	Physics 1.....
		II	Chemistry 3.....	English 3.....	Military Science...
			Germa n		
	Sat.	I	{ German 3.....	French 3.....	Botany 8.....
		II	{	Drawing 21.....	Drawing 21.....

FOUR-YEAR COURSES.

Term.	Day.	Section.	11-11.50	1.30-2.30	2.30-4
Fall.	Mon.	I	Drill	Drawing 19	Drawing 19
		II	.....	Shop-work 1.....	Shop-work 1
	Tues.	I	Mathematics 1....	Drawing 19	Drawing 19
		II	.....	Shop-work 1.....	Shop-work 1
	Wed.	I	.....	Mathematics 1	.....
		II	History 1 or 4.....	.....	Mathematics 1.....
	Thur.	I	Mathematics 1....	Shop-work 1 or....	History 1 or 4
		II	.....	Drawing 19	Drawing 19
	Fri.	I	.....	Shop-work 1.....	Shop-work 1
		II	Drill.....	Drawing 19	Drawing 19
	Sat.	I	Mathematics 1....	.....	.....
		II	.....	.....	.....
Winter	Mon.	I	.....	Drawing 20	Drawing 20
		II	Mathematics 3....	Shop-work 2.....	Shop-work 2
	Tues.	I	Mathematics 3....	Drawing 20	Drawing 20
		II	Drill	Shop-work 2.....	Shop-work 2
	Wed.	I	.....	Drawing 20	Shop-work 2
		II	Mathematics 3....	Shop-work 2	Drawing 20
	Thu	I	Mathematics 3....	Shop-work 2.....	History 2 or 5
		II	Drill.....	Drawing 20	Drawing 20
	Fri.	I	History 2 or 5....	Shop-work 2.....	Shop-work 2
		II	Mathematics 3....	Drawing 20.....	Drawing 20
	Sa t.	I	.....	.....	.....
		II	Mathematics 3....	.....	.....
Spring	Mon.	I	Drill.....	Mathematics 4....	Mathematics 4....
		II	.....	.....	.....
	Tues.	I	Botany 8.....	Mathematics 4....	Mathematics 4....
		II	Drawing 21	.....	.....
	Wed.	I	German 3.....	Mathematics 4....	Mathematics 4....
		II	.....	.....	.....
	Thur.	I	Botany 8.....	Shop-work 3.....	Shop-work 3.....
		II	Drawing 21	History 3 or 6....	History 3 or 6....
	Fri.	I	Drill.....	Shop-work 3.....	Shop-work 3.....
		II	.....	History 3 or 6....	History 3 or 6....
	Sat.	I	Botany 8.....	.....	.....
		II	Drawing 21	.....	.....

SOPHOMORE CLASS—FALL TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday	Zoology 1	Zoology 1	Botany 9	Drill	Chemistry 4	Chemistry 4
Tuesday	Agriculture 19	Zoology 1	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
Wednesday	Agriculture 19	Botany 9	Botany 9	.....	Chemistry 4	Chemistry 4
Thursday	Zoology 1	Zoology 1	Physics 2 & 3	German 4	Agriculture 19	Agriculture 19
Friday	.....	Zoology 1	Military Science	Drill	Horticulture 2	Horticulture 2
Saturday	Botany 9	Botany 9	Physics 2 & 3	German 4	.....	.....

GENERAL.

Monday	Zoology 1	Zoology 1	Botany 9	Drill	Spanish 1 Chemistry 4	Chemistry 4
Tuesday	Mathematics 5	Zoology 1	Physics 2 & 3	German 4	Spanish 1 Chemistry 4	Chemistry 4
Wednesday	Mathematics 5	Botany 9	Botany 9	History 1 or 4	Spanish 1 History 1 or 4	History 1 or 4
Thursday	Mathematics 5 Zoology 1	Zoology 1	Physics 2 & 3	German 4	History 1 or 4	History 1 or 4
Friday	Mathematics 5	History 1 or 4	Military Science	Drill	Chemistry 4	Chemistry 4
Saturday	Mathematics 5 Botany 9	Botany 9	Physics 2 & 3	German 4	.....	.....

ENGINEERING.

Monday	I Shop-work 4	I Shop-work 4	I Shop-work 4	Drill	1 Chemistry 5 II Shop-work 4	1 Chemistry 5 II Shop-work 4
Tuesday	Mathematics 5	Military Science	Physics 2 & 3	German 4	II Shop-work 4 I Chemistry 5	II Shop-work 4 I Chemistry 5
Wednesday	Mathematics 5	Drawing 23	Drawing 23	Drawing 23	II Chemistry 5 I Shop-work 4	II Chemistry 5 I Shop-work 4
Thursday	Mathematics 5	Mechanical Eng. 2	Physics 2 & 3	German 4	.....	.....
Friday	Mathematics 5	Drawing 23	Drawing 23	Drill	Special Work	
Saturday	Mathematics 5	Mechanical Eng. 2	Physics 2 & 3	German 4		

CHEMICAL ENG.

Monday	.....	.....	.....	Drill	Chemistry 4	Chemistry 4
Tuesday	Mathematics 5	Military Science	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
Wednesday	Mathematics 5	Drawing 24	.. Drawing 24	Drawing 24	Chemistry 4	Chemistry 4
Thursday	Mathematics 5	.....	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
Friday	Mathematics 5	Drawing 24	Drawing 24	Drill	Chemistry 4	Chemistry 4
Saturday	Mathematics 5	.....	Physics 2 & 3	German 4	.....	.....

SOPHOMORE CLASS—WINTER TERM—FOR ALL FOUR-YEAR COURSES.

	Day.	8-9	9-10	10-11	11-11.50	1.30-4	
AGRICULTURE.	Monday	Zoology 4	Zoology 4	Horticulture 3	Physics 4	Chemistry 4	Chemistry 4
	Tuesday	Horticulture 3	Horticulture 3	Drill	German 5	Chemistry 4	Chemistry 4
	Wednesday	Botany 10	Military Science	Physics 4	.....	Chemistry 4	Chemistry 4
	Thursday	Zoology 4	Zoology 4	Drill	German 5	Horticulture 3	Horticulture 3
	Friday	Botany 10	Botany 10	Physics 4	.....	Zoology 4	Zoology 4
	Saturday	Botany 10	Botany 10	Botany 10	German 5	.....	.....
GENERAL.	Monday	Zoology 4	Zoology 4	Philosophy 1 Physics 25	Physics 4 & 5	Spanish 2 Chemistry 4	Chemistry 4
	Tuesday	Mathematics 6	Military Science	Drill	German 5	Spanish 2 Chemistry 4	Chemistry 4
	Wednesday	Mathematics 6 Drawing 33 Botany 10	History 2 or 5 Drawing 33	Physics 4 & 5 Physics 25	Philosophy 1	Spanish 2 Chemistry 4	Chemistry 4
	Thursday	Mathematics 6	Zoology 4	Drill 5	German 5	History 2 or 5	History 2 or 5
	Friday	Mathematics 6 Drawing 33 Botany 10	Drawing 33 Botany 10	Physics 4 & 5	History 2 or 5	Zoology 4	Zoology 4
	Saturday	Mathematics 6 Botany 10	Physics 25 Botany 10	Botany 10	German 5	.....	.....

ENGINEERING.	Monday	I Shop-work 5	I Shop-work 5	I Shop-work 5	Physics 4 & 5	I Chemistry 5 II Shop-work 5	I Chemistry 5 II Shop-work 5
	Tuesday	Mathematics 6	Mech. Eng. 3	Drill	German 5	II Shop-work 5 I Chemistry 5	II Shop-work 5 I Chemistry 5
	Wednesday	Mathematics 6	Drawing 25	Physics 4 & 5	Drawing 25	II Chemistry 5 I Shop-work 5	II Chemistry 5 I Shop-work 5
	Thursday	Mathematics 6	Mech. Eng. 3	Drill	German 5	Military Science	.....
	Friday	Mathematics 6	Drawing 25	Physics 4 & 5	Drawing 25	II Chemistry 5 I Shop-work 5	II Chemistry 5 I Shop-work 5
	Saturday	Mathematics 6	Drawing 25	Drawing 25	German 5	.....	.....
CHEMICAL ENG.	Monday	Chemistry 10	Chemistry 10	Chemistry 10	Physics 4 & 5	Chemistry 10	Chemistry 10
	Tuesday	Mathematics 6	Military Science	Drill	German 5	Chemistry 10	Chemistry 10
	Wednesday	Mathematics 6	Chemistry 10	Physics 4 & 5	.....	Chemistry 10	Chemistry 10
	Thursday	Mathematics 6	.....	Drill	German 5	Chemistry 10	Chemistry 10
	Friday	Mathematics 6	Chemistry 10	Physics 4 & 5	.....	Chemistry 10	Chemistry 10
	Saturday	Mathematics 6	Chemistry 10	Chemistry 10	German 5	.....	.....

SOPHOMORE CLASS—SPRING TERM—FOR ALL FOUR-YEAR COURSES.

	Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
AGRICULTURE.	Monday	Military Science	Horticulture 2	Horticulture 2	Drill	Zoology 3	Zoology 3
	Tuesday	.....	Political Science 1	Agriculture 20	German 6	Horticulture 2	Horticulture 2
	Wednesday	.....	Political Science 1	Agriculture 20	Agriculture 20	Zoology 3	Zoology 3
	Thursday	.....	Political Science 1	Zoology 3	German 6	Botany 11	Botany 11
	Friday	Zoology 3	Political Science 1	Agriculture 20	Drill	Botany 11	Botany 11
	Saturday	.....	Political Science 1	.....	German 6	.....	.....
GENERAL.	Monday	Military Science	History 3 or 6	Drawing 34	Drill	Zoology 3 Spanish 3	Zoology 3
	Tuesday	Mathematics 7	Political Science 1	Physics 5	German 6	Spanish 3 Botany 11	Botany 11
	Wednesday	Mathematics 7	Political Science 1	Drawing 12 Philosophy 5	Drawing 12	Spanish 3	Zoology 3
	Thursday	Mathematics 7	Political Science 1	Zoology 3 Physics 5	German 6	History 3 or 6 Botany 11	Botany 11 History 3 or 6
	Friday	Mathematics 7 Zoology 3	Political Science 1	Philosophy 5 Drawing 34	Drill	History 3 or 6	History 3 or 6
	Saturday	Mathematics 7	Political Science 1	Physics 5	German 6	.....	.....

ENGINEERING.						
Monday	.....	.....	Mech. Eng. 22	Drill	Drawing 26	Drawing 26
Tuesday	Mathematics 7	.....	Physics 5	German 6	Drawing 26	Drawing 26
Wednesday	Mathematics 7	Mech. Eng. 2	Mech. Eng. 22	.....	Drawing 26	Drawing 26
Thursday	Mathematics 7	Military Science	Physics 5	German 6	Drawing 26	Drawing 26
Friday	Mathematics 7	.....	.....	Drill	Drawing 26	Drawing 26
Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....
CHEMICAL ENG.						
Monday	.....	Geology 1	Geology 1	Drill	Chemistry 11	Chemistry 11
Tuesday	Mathematics 7	.....	Physics 5	German 6	Chemistry 11	Chemistry 11
Wednesday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
Thursday	Mathematics 7	Military Science	Physics 5	German 6	Chemistry 8	Chemistry 8
Friday	Mathematics 7	Geology 1	Geology 1	Drill	Chemistry 8	Chemistry 8
Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

JUNIOR CLASS—FALL TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday	Dairying 1 & 3	Dairying 1 & 3	Horticulture 4	Drill	Agriculture 2	Agriculture 2
Tuesday	Chemistry 6	Dairying 1 & 3	Dairying 1 & 3	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday	Chemistry 6	Dairying 1 & 3	*Zoology 5	Agriculture 2	Horticulture 4	Horticulture 4
Thursday	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	.....	.....
Friday	Chemistry 6	Military Science	*Zoology 5	Drill	*Zoology 5	*Zoology 5 *Botany 12
Saturday	*Zoology 5 *Botany 12	*Zoology 5 Botany 12	*Zoology 5 Botany 12	*Botany 12	.....	

* Elective.

GENERAL.

Monday	.....	French 4	.....	Drill	Chemistry 4 Spanish 1	Physics 6
Tuesday	Drawing 35 Chemistry 6	Drawing 35	History 7	Philosophy 3	Chemistry 4 Spanish 1	Physics 6
Wednesday	Chemistry 6	Mathematics 8 French 4	Zoology 5	.....	Chemistry 4 Spanish 1	Physics 6
Thursday	.....	Drawing 35	History 7	Philosophy 3	Drawing 35	Drawing 35
Friday	Drawing 35 Chemistry 6	French 4 Mathematics 8	Zoology 5 History 7 Military Science	Drill	History 7	History 7
Saturday	Zoology 5	Zoology 5	Zoology 5	Philosophy 3	.....	.....

MECHANICAL ENG.	Monday	.....	Elec. Eng. 1	Mechan. Eng. 7	Drill	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mechan. Eng. 8	Physics 6	Physics 6
	Wednesday	Electrical Eng. 1	.....	Mechan. Eng. 4	Mechan. Eng. 8	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mechan. Eng. 8	Shop-work 6	Shop-work 6
	Friday	Elec. Eng. 1	Military Science	.....	Drill	Shop-work 6	Shop-work 6
	Saturday	.....	Mechan. Eng. 4	Mechan. Eng. 7	Mechan. Eng. 8	.....	.....
CHEMICAL ENG.	Monday	.....	French 4	Mech. Eng. 7	Drill	Chemistry 9	Chemistry 9
	Tuesday	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Wednesday	Chemistry 6	French 4	Mechan. Eng. 4	.....	Chemistry 9	Chemistry 9
	Thursday	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Friday	Chemistry 6	French 4	Military Science	Drill	Chemistry 11	Chemistry 11
	Saturday	.....	Mech. Eng. 4	Mech. Eng. 7	.....	.....	.....
ELECTRICAL ENG	Monday	Elec. Eng. 4	Elec. Eng. 1	Mech. Eng. 7	Drill	Physics 6	Physics 6
	Tuesday	Drawing 27	Drawing 27	Drawing 27	Mech. Eng. 8	Physics 6	Physics 6
	Wednesday	Elec. Eng. 1	Elec. Eng. 4	Mech. Eng. 4	Mech. Eng. 8	Physics 6	Physics 6
	Thursday	Drawing 27	Drawing 27	Drawing 27	Mech. Eng. 8	.....	.....
	Friday	Elec. Eng. 1	Military Science	Elec. Eng. 4	Drill	.....	.....
	Saturday	.....	Mech. Eng. 4	Mech. Eng. 7	Mech. Eng. 8	.....	.....

JUNIOR CLASS—WINTER TERM—FOR ALL FOUR-YEAR COURSES.

	Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
AGRICULTURE.	Monday	English 7			*Agriculture 11 *Zoology 6 or 17	Agriculture 3	Agriculture 3
	Tuesday	English 4	Agriculture 10	Forestry 1	Drill	*Agriculture 11	
	Wednesday	Chemistry 7		Agriculture 3	*Agriculture 11 *Zoology 6 or 17	Forestry 1	Forestry 1
	Thursday	English 4	Agriculture 10	Forestry 1	Drill		
	Friday	Chemistry 7		Agriculture 3	*Agriculture 11 *Zoology 6 or 17	Agriculture 10	Agriculture 10
	Saturday	Military Science			Geology 1	* Elective.	
GENERAL.	Monday	English 7		History 8	French 5 Zoology 6 or 17	Chemistry 4 Spanish 2	Physics 7
	Tuesday	English 4	Philosophy 4	Political Science 4 or 6	Drill	Chemistry 4 Spanish 2	Physics 7
	Wednesday	Chemistry 7	Mathematics 9	History 8	French 5 Zoology 6 or 17	Chemistry 4 Spanish 2	Physics 7
	Thursday	English 4	Philosophy 4	Political Science 4 or 6	Drill	Drawing 36	
	Friday	Chemistry 7	Mathematics 9	History 8	French 5 Zoology 6 or 17	Drawing 36	
	Saturday	Military Science	Philosophy 4	Political Science 4 or 6			

MECHANICAL ENG.	Monday	English 7	Elec. Eng. 42	Mech. Eng. 5	.....	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Mech. Eng. 9	Drill	Physics 7	Physics 7
	Wednesday	Elec. Eng. 42	Mech. Eng. 5	.....	.....	Physics 7	Physics 7
	Thursday	Elec. Eng. 42	Mech. Eng. 5	Mech. Eng. 9	Drill	Shop-work 7	Shop-work 7
	Friday	Drawing 28	Drawing 28	Drawing 28	Drawing 28	Shop-work 7	Shop-work 7
	Saturday	Military Science	Mech. Eng. 5	Mech. Eng. 9	.....	.....	.....
CHEMICAL ENG.	Monday	English 7	.....	Mech. Eng. 5	French 5	Physics 7	Physics 7
	Tuesday	Chemistry 11	Chemistry 11	Chemistry 13	Drill	Physics 7	Physics 7
	Wednesday	.....	Mech. Eng. 5	.....	French 5	Physics 7	Physics 7
	Thursday	.....	Mech. Eng. 5	Chemistry 13	Drill	Chemistry 11	Chemistry 11
	Friday	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11	Chemistry 11
	Saturday	Military Science	Mech. Eng. 5	.....	.....	.....	.....
ELECTRICAL ENG.	Monday	English 7	Elec. Eng. 2	Mech. Eng. 5	Elec. Eng. 5	Physics 7	Physics 7
	Tuesday	Drawing 28	Drawing 28	Mech. Eng. 9	Drill	Physics 7	Physics 7
	Wednesday	Elec. Eng. 2	Mech. Eng. 5	Drawing 28	Elec. Eng. 5	Physics 7	Physics 7
	Thursday	Elec. Eng. 2	Mech. Eng. 5	Mech. Eng. 9	Drill	.....	.....
	Friday	Drawing 28	Drawing 28	Drawing 28	Elec. Eng. 5	.....	.....
	Saturday	Military Science	Mech. Eng. 5	Mech. Eng. 9	.....	.....	.....

JUNIOR CLASS—SPRING TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday	*Zoology 7 or 9	Geology 1	Geology 1	Drill	Horticulture 5	Horticulture 5
Tuesday	*Zoology 7 or 9	Military Science	English 5	Agriculture 4	.....	.....
Wednesday	Agriculture 13	Geology 1	Geology 1	English 7	.....	.....
Thursday	*Agriculture 12 *Zoology 7 or 9	Horticulture 5	English 5	Agriculture 13	Agriculture 4	Agriculture 4
Friday	*Agriculture 12	Geology 1	Geology 1	Drill	Horticulture 5	Horticulture 5
Saturday	*Agriculture 12 *Zoology 7 or 9	Agriculture 13	Agriculture 13	Agriculture 4	.....	.....

* Elective.

GENERAL.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday		Geology 1	French 6 Geology 1	Drill	Spanish 3 Physics 8	Physics 8
Tuesday	Zoology 7 or 9 Philosophy 10	Military Science	English 5	Political Science 5 or 7	Spanish 3 History 9	Physics 8 History 9
Wednesday		Geology 1	French 6 Geology 1	.....	Spanish 3	Physics 8
Thursday	Philosophy 10 Zoology 7 or 9	.....	English 5	Political Science 5 or 7	Drawing 37 History 9	History 9
Friday		Geology 1	French 6 Geology 1	Drill	Drawing 37	Drawing 37
Saturday	Philosophy 10 Zoology 7 or 9	.....	Drawing 37	Political Science 5 or 7	.....	

MECHANICAL ENG.

Monday	Drawing 29	Drawing 29	Drawing 29	Drill	Physics 8	Physics 8
Tuesday	Mech. Eng. 5	Military Science	Mech. Eng. 10	Elec. Eng. 43	Physics 8	Physics 8
Wednesday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8	Physics 8
Thursday	Mech. Eng. 5	.....	Mech. Eng. 10	Elec. Eng. 43	Shop-work 8	Shop-work 8
Friday	Mech. Eng. 5	.....	Mech. Eng. 10	Drill	Shop-work 8	Shop-work 8
Saturday	Mech. Eng. 5	Elec. Eng. 43	Mech. Eng. 10	.....	.....	.....

CHEMICAL ENG.

Monday	Chemistry 11	Chemistry 11	French 6	Drill	Physics 8	Physics 8
Tuesday	Mech. Eng. 6	Military Science	English 5	Chemistry 14	Physics 8	Physics 8
Wednesday	Chemistry 11	Chemistry 11	French 6	Chemistry 11	Physics 8	Physics 8
Thursday	Mech. Eng. 6	.....	English 5	Chemistry 14	Chemistry 11	Chemistry 11
Friday	Chemistry 11	Mech. Eng. 6	.....	Drill	Chemistry 11	Chemistry 11
Saturday	Mech Eng. 6	Chemistry 11	French 6	Chemistry 11	.....	.....

ELECTRICAL ENG.

Monday	Drawing 29	Drawing 29	Drawing 29	Drill	Physics 8	Physics 8
Tuesday	Mech. Eng. 5	Military Science	Mech. Eng. 10	Elec. Eng. 3	Physics 8	Physics 8
Wednesday	Drawing 29	Drawing 29	Drawing 29	Elec. Eng. 6	Physics 8	Physics 8
Thursday	Mech. Eng. 5	.....	Mech. Eng. 10	Elec. Eng. 3	.....	.....
Friday	Mech. Eng. 5	Elec. Eng. 6	Mech. Eng. 10	Drill	.....	.....
Saturday	Mech. Eng. 5	Elec. Eng. 3	Mech. Eng. 10	Military Science	.....	.....

SENIOR CLASS—FALL TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday	.....	*Forestry 2	.....	*Agriculture 14	Geology 2	Geology 2
Tuesday	.....	.....	History 7	*Horticulture 9	*Agriculture 14	Agriculture 15
Wednesday	Geology 2	.....	*Forestry 2	*Horticulture 9	*Agriculture 14	*Agriculture 14
Thursday	.....	.....	History 7	*Horticulture 9	*Forestry 2	*Forestry 2 History 7
Friday	Geology 2	Geology 2	*Agriculture 14	.....	History 7	Agriculture 15
Saturday	Geology 2	.....	History 7	.....	.....	.....

*Elective.

MECHANICAL ENG.

Monday	Elec. Eng. 44 and 45	.....	Mechan. Eng. 12	Mechan. Eng. 11	Shop-work 9	Shop-work 9
Tuesday	Mechan. Eng. 11	Shop-work 9	Shop-work 9	Shop-work 9	.....	.....
Wednesday	Drawing 30	Mechan. Eng. 12	Mechan. Eng. 11	Elec. Eng. 44 & 45	Drawing 30	Drawing 30
Thursday	Mechan. Eng. 11	Mechan. Eng. 12	Drawing 30	Elec. Eng. 44 & 45	Mechan. Eng. 14	Mechan. Eng. 14
Friday	Drawing 30	Drawing 30	Drawing 30	.....	Mechan. Eng. 14	Mechan. Eng. 14
Saturday	Drawing 30	Drawing 30	Drawing 30	.....	.....	.....

CHEMICAL ENG.	Monday	Chemistry 11 or 21	Chemistry 11 or 21	.....	Elec. Eng. 51	Chemistry 11 or 21	Chemistry 11 or 21
	Tuesday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Wednesday	Shop work 18	Shop work 18	Shop work 18	Shop work 18	Elec. Eng. 51	Elec. Eng. 51
	Thursday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Friday	Elec. Eng. 51	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Saturday	.....	Chemistry 12	.....	Mechan. Eng. 8	.....	.....
ELECTRICAL ENG.	Monday	.....	Mechan. Eng. 12	Mechan. Eng. 11	.....	Elec. Eng. 31	Elec. Eng. 31
	Tuesday	Mechan. Eng. 11	Elec. Eng. 7	Elec. Eng. 20, 21 and 22	Elec. Eng. 7	.....	.....
	Wednesday	Elec. Eng. 20, 21 and 22	Mechan. Eng. 12	Mechan. Eng. 11	.....	Elec. Eng. 31	Elec. Eng. 31
	Thursday	Mechan. Eng. 11	Mechan. Eng. 12	Elec. Eng. 20, 21 and 22	Elec. Eng. 7	Mechan. Eng. 14	Mechan. Eng. 14
	Friday	.....	Elec. Eng. 7	.....	.....	Mechan. Eng. 14	Mechan. Eng. 14
	Saturday	.....	Elec. Eng. 7	.....	Elec. Eng. 7	.....	.....

SENIOR CLASS—WINTER TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday			History 8	*Zoology 6 or 17		
Tuesday		Horticulture 6	Political Science 6		*Agriculture 6	*Agriculture 6
Wednesday		*Agriculture 5	History 8	*Zoology 6 or 17	*Agriculture 6	*Agriculture 6
Thursday		Horticulture 6	Political Science 6		*Agriculture 21	*Agriculture 21
Friday	*Agriculture 21	*Agriculture 5	History 8	*Zoology 6 or 17	Horticulture 6	Horticulture 6
Saturday		*Agriculture 5	Political Science 6			

*Elective.

MECHANICAL ENG.

Monday	Drawing 31	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 17	Thesis	Thesis
Tuesday	Drawing 31	Drawing 31	Drawing 31	Mechan. Eng. 23 or 24	Thesis	Thesis
Wednesday	Drawing 31	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 17	Mechan. Eng. 15	Mechan. Eng. 15
Thursday	Drawing 31	Drawing 31	Drawing 31	Mechan. Eng. 23 or 24	Mechan. Eng. 15	Mechan. Eng. 15
Friday	Shop-work 10	Shop-work 10	Shop-work 10	Mechan. Eng. 17	Mechan. Eng. 15	Mechan. Eng. 15
Saturday	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 9	Mechan. Eng. 23 or 24		

CHEMICAL ENG.

Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
Tuesday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
Wednesday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 52	Chemistry 20 or 21	Chemistry 20 or 21
Thursday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
Friday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 52	Chemistry 20 or 21	Chemistry 20 or 21
Saturday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 12	.....	.....

ELECTRICAL ENG.

Monday	.....	.....	Elec. Eng. 8	Mechan. Eng. 17	Elec. Eng. 32	Elec. Eng. 32
Tuesday	Elec. Eng. 8	.....	.....	Elec. Eng. 9	Elec. Eng. 32	Elec. Eng. 32
Wednesday	.....	Elec. Eng. 23	Elec. Eng. 8	Mechan. Eng. 17	Mech. Eng. 15	Mech. Eng. 15
Thursday	.....	Elec. Eng. 8	.....	Elec. Eng. 9	Mech. Eng. 15	Mech. Eng. 15
Friday	.....	Elec. Eng. 24	Elec. Eng. 8	Mechan. Eng. 17	Mech. Eng. 15	Mech. Eng. 15
Saturday	Elec. Eng. 13	.....	.....	Elec. Eng. 9	.....	.....

SENIOR CLASS—SPRING TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.

Day.	8-9	9-10	10-11	11-11.50	1.50-2.30	2.30-4
Monday	*Zoology 7 or 9	.....	.....	.....	*Horticulture 7	*Horticulture 7
Tuesday	*Forestry 3	Agriculture 17	Meteorology 1	.....	.....	.....
Wednesday	*Horticulture 8	.....	.....	Agriculture 16	*Horticulture 7	*Horticulture 7
Thursday	*Forestry 3 *Zoology 7 or 9	Agriculture 17	Meteorology 1	Agriculture 16	*Forestry 3	*Forestry 3
Friday	*Horticulture 8	.....	*Horticulture 7	Agriculture 16	.....	.....
Saturday	*Zoology 7 or 9	Agriculture 17	Meteorology 1	.....	.....	.....

*Elective.

MECHANICAL ENG

Monday	Drawing 32	Mechan. Eng. 18	Drawing 32	Mechan. Eng. 18	Mech. Eng. 16	Mech. Eng. 16
Tuesday	Drawing 32	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
Wednesday	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
Thursday	Drawing 32	Political Science 1	Drawing 32	Drawing 32	Thesis	Thesis
Friday	Political Science 1	Drawing 32	Drawing 32	Mechan. Eng. 18	Thesis	Thesis
Saturday	Drawing 32	Political Science 1	.....	.....	.....	.....

CHEMICAL ENG.

Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
Tuesday		Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
Wednesday		Political Science 1			Chemistry 20 or 21	Chemistry 20 or 21
Thursday		Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
Friday		Political Science 1	Chemistry 19	Chemistry 19	Chemistry 19	Chemistry 19
Saturday		Political Science 1		Chemistry 12		

ELECTRICAL ENG.

Monday	Elec. Eng. 10 & 25	Elec. Eng. 10 & 25		Mechan. Eng. 18	Mech. Eng. 16	Mech. Eng. 16
Tuesday	Political Science 1				Mech. Eng. 16	Mech. Eng. 16
Wednesday	Political Science 1			Mechan. Eng. 18	Elec. Eng. 17	Elec. Eng. 17
Thursday	Political Science 1	Thesis	Thesis	Thesis	Elec. Eng. 17	Elec. Eng. 17
Friday	Political Science 1	Thesis	Thesis	Thesis	Thesis	Thesis
Saturday	Political Science 1	Mechan. Eng. 18		Elec. Eng. 10 & 25		

GENERAL COURSE—SENIOR YEAR.

Fall .....

Day.	8-9	9-10	10-11	11-12	1.30-4
Monday.....	.....	.....	French 7	History 10	Botany 5 Drawing 38 Geology 2 Spanish 1 Zoology 11
Tuesday.....	Elec. Eng. 61	Political Sci. 2 & 3	Philosophy 11	Philosophy 3 History 10	Botany 5 Drawing 38 Spanish 1 Zoology 11
Wednesday.....	German 7	Political Sci. 2 & 3	French 7	.....	Botany 5 Drawing 38 Spanish 1 Zoology 11
Thursday.....	Elec. Eng. 61	Political Sci. 2 & 3	Philosophy 11	Philosophy 3	Zoology 11
Friday.....	German 7 Geology 2	Geology 2	French 7	Philosophy 3 Political Sci. 2 & 3	History 10
Saturday.....	Geology 2	Political Sci. 2 & 3	Philosophy 11	Philosophy 3 Elec. Eng. 61	.....

Winter	Monday		Mathematics 6	French 8	Zoology 6 or 17	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Tuesday		Philosophy 4	Political Sci. 4 or 6	English 8	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Wednesday	German 8	Mathematics 10	French 8	Zoology 6 or 17	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Thursday		Philosophy 4	Political Sci. 4 or 6	English 8	
	Friday	German 8	Mathematics 10	French 8	Zoology 6 or 17	Mathematics 6
	Saturday		Philosophy 4	Political Sci. 4 or 6	English 8	

GENERAL COURSE—SENIOR YEAR.

Spring	Monday	Zoology 7 or 9	French 9	Mathematics 11	English 9	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Tuesday	Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Wednesday	German 9	French 9	Mathematics 11	English 9	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Thursday	Zoology 7 or 9 Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	.....
	Friday	German 9	French 9	Mathematics 11	English 9	.....
	Saturday	Zoology 7 or 9 Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	.....

TWO-YEAR COURSE IN AGRICULTURE.

This course was established by the Legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four year collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States."

For those who do not bring certificates to show their proficiency in these subjects an entrance examination in geography, arithmetic, English and United States history will be given on Tuesday afternoon and Wednesday morning of the opening week of school.

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
*Mathematics 12	2
English 11 and 1	5
Botany 1	3
*Zoölogy 14	3
Horticulture 1	1
Agriculture 1	3
Agriculture 18	3
Military Science	1
Military Drill	1

WINTER TERM.

Mathematics 13	3
English 2	2
Shop Work 12	2
Zoölogy 15	5
Botany 2	3
Horticulture 3	3
Military Science	1
Military Drill	1

SPRING TERM.

English 3	1
Physics 41	3
Botany 3	3
Dairying 7 and 3	5
Zoölogy 3	4
Chemistry 22	3
Military Science	1
Military Drill	1

*Mathematics 12 begins Oct. 14 after which Zoölogy 14.

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Dairying 4	3
Botany 4	3
Horticulture 2	1
Horticulture 4	3
Physics 42	3
Agriculture 19	3
Agriculture 2	3
Military Science	1
Military Drill	1

WINTER TERM.

*Agriculture 21 or	2
*Dairying 2	3
Agriculture 3	3
Agriculture 5	3
*Agriculture 10 or	
*Horticulture 6	3
Forestry 1	3
Agriculture 11	4
Military Science	1
Military Drill	1

SPRING TERM.

Shop Work 13	2
Horticulture 2	2
Horticulture 5	3
Agriculture 12	3
Agriculture 4	3
Agriculture 13	4
Agriculture 20	3
Military Science	1
Military drill	1

*Elective.

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

Day.	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Agriculture 1	Agriculture 1 *Zoology 14	Ariculture 18	Drill	Horticulture 1	Horticulture
Tuesday	English 10	*Mathematics 12	Military Science Mathematics 12	Agriculture 18	Botany 1	Botany 1
Wednesday	English 1	Agriculture 1	*Zoology 14	Zoology 14	Botany 1	Botany 1
Thursday	English 10	Botany 1		Military Science	Zoology 14	Zoology 14
Friday	English 1	*Zoology 14 *Zoology 14	Agriculture 1	Drill	Agriculture 18	Agriculture 18
Saturday	English 10	*Mathematics 12	.....	.....	.....	.....

* Elective.

WINTER TERM.

Monday	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12
Tuesday	Zoology 15	Mathematics 13	Drill	.....	Botany 2	Botany 2
Wednesday	English 2	Horticulture 3	Zoology 15	Zoology 15	Horticulture 3	Horticulture 3
Thursday	.....	Mathematics 13	Drill	Botany 2	Zoology 15	Zoology 15
Friday	English 2	Military Science	Zoology 15	Zoology 15	Horticulture 3	Horticulture 3
Saturday	.....	Mathematics 13	Botany 2	Botany 2	.....	.....

SPRING TERM.

Monday.....	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Drill	Zoology 3	Zoology 3
Tuesday.....	Dairying 7 & 3	Botany 3	Physics 14	Chemistry 22	Botany 3	Botany 3
Wednesday.....	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Physics 14	Zology 3	Zoology 3
Thursday.....	Dairying 7 & 3	Dairying 7 & 3	Zoology 3	Chemistry 22	.....	.....
Friday.....	Military Science	English 3	Physics 14	Drill	.....	.....
Saturday.....	Dairying 7 & 3	Botany 3	Botany 3	Chemistry 22	.....	.....

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR—FALL TERM.

DAY.	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Dairying 4	Dairying 4	Horticulture 4	Drill	Agriculture 2	Agriculture 2
Tuesday	Agriculture 19	Botany	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday	Agriculture 19	Physics 15	Physics 15	Agriculture 2	Horticulture 4	Horticulture 4
Thursday	Dairying 4	Dairying 4	Botany 4	Physics 15	Agriculture 19	Agriculture 19
Friday	Botany 4	Botany 4	Military Science	Drill	Horticulture 2	Horticulture 2
Saturday	Dairying 4	Dairying 4	Dairying 4			

WINTER TERM.

Monday	Dairying 2	Dairying 2	Dairying 2	Agriculture 11	Agriculture 3	Agriculture 3
Tuesday		Agriculture 10	Forestry 1	Drill	Agriculture 11	
Wednesday		Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday		Agriculture 10	Forestry 1	Drill		Dairying 2
Friday	Military Science	Agriculture 5	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
Saturday		Agriculture 5	Dairying 2	Dairying 2		

SPRING TERM.

Monday.....	Agriculture 3	Horticulture 2	Horticulture 2	Drill	Horticulture 5	Horticulture 5
Tuesday.....	Shop-work 13	Shop-work 13	Agriculture 20	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday.....	Agriculture 13	.....	Agriculture 20	Agriculture 20	Shop-work 13	Shop-work 13
Thursday.....	Agriculture 12	Horticulture 5	.....	Agriculture 13	Agriculture 4	Agriculture 4
Friday.....	Agriculture 12	Military Science	Agriculture 20	Drill	Horticulture 5	Horticulture 5
Saturday.....	Agriculture 12	Agriculture 13	Agriculture 13	Agriculture 4	.....	.....

TEN-WEEKS COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 8, and continuing until Friday, March 15, 1906.

No entrance examinations are required for this course, but students taking it must possess a good common school education. The course is especially desirable for students of mature years who can find the time to come from the farm during the winter and study some of the principles of agricultural science.

The courses of study offered are dairying, stock feeding, principles of breeding, veterinary elements, poultry, breeds of dairy cattle, greenhouse management, forestry, soil physics, botany and entomology, together with practical work in the creamery, forge, wood and machine shops and greenhouses.

Since the hours of study for the above named courses are scheduled on other pages of the catalogue, they are not repeated here in a separate schedule. Those contemplating taking the course should decide what studies they wish to pursue and then make out a schedule of hours for themselves.

A fee of $5 is charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, 10 weeks at $4	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office in Thompson Hall on Tuesday, January 8, 1906.

TEN-WEEKS COURSE IN DAIRYING OR DAIRY SCHOOL.

The eleventh annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 8, and continue 10 weeks. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room and board for 10 weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for

testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCT.

Prof. F. W. Taylor.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

The student will study the construction, operation and care of the various appliances used in the dairy or creamery, and will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed and efficiency. Plans of dairy and creamery buildings, with estimates for building will be required.

MILK TESTING.

Mr. F. A. Tinkham.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law and the value of

the test in the successful management of the dairy herd has created a demand for practical training. The course will include lectures and recitations on the principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of 10 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Mr. F. A. Tinkham.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

BOILERS AND ENGINES.

Assistant Professor E. H. Hancock.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction will also be given in pipe cutting and fitting and other work incidental to the management of a steam plant.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding as exhibited through the laws of heredity, variation and selection; methods of breeding, including a discussion of in-breeding, cross-breeding and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive and milk-producing organs, the common diseases, the causes and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government. The appropriations for the current year aggregate $22,000.

The Acts of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artifical, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1906.

On Commencement Day, June 6, 1906, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Charles S. Batchelder, South Hampton.
Clarence Elbert Clement, Derry.
Cyrus Fremont Jenness, Gonic.

IN CHEMISTRY.

Stuart Kendrick Barnes, Walpole.
Carl Tilson Fuller, Nashua.
Wallace Fuller Purington, South Yarmouth, Mass.
Edwin Jay Roberts, Laconia.

IN ELECTRICAL ENGINEERING.

Samuel Taylor Adams, Pittsfield.
Neil Starr Franklin, Bernardston, Mass.
William Safford Gooch, Exeter.
Ralph Edward Gowen, Stratham.
Allen Montague Johnson, Nashua.
Charles Leo Tuttle, Exeter.

IN GENERAL COURSE.

William Cassius Campbell, West Windham.
John Dustin Clark, Nashua.
Ernest Luther Converse, Amherst.

IN MECHANICAL ENGINEERING.

Edwin Davis Hardy, Nashua.
Roy Vance Swain, Barrington.

MASTERS OF SCIENCE.

John Leslie Randall, Lee.
William Orrin Robinson, Marlborough.

MECHANICAL ENGINEER.

Lewis H. Kenney, '99, Philadelphia, Pa.

CERTIFICATES.

Certificates from the Two-Year Course in Agriculture were awarded to—
Alfred Walker Clough, Greenland.
Oliver Carter Dimond, West Concord.
Ralph Wayne Forristall, Alstead.
Stanley Hargreaves, Durham.
Robert Stanley Sawyer, Walpole.

HONORARY DEGREES.

MASTER OF SCIENCE.

Henry C. Morrison, A. M., Concord, State Superintendent of Public Instruction.

BACHELOR OF SCIENCE.

Harry F. Hall, Durham, Instructor in Horticulture and Associate Horticulturist to New Hampshire Agricultural Experiment Station, New Hampshire College.

PRIZE RECORD FOR 1906.

BAILEY PRIZE—$10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Stuart Kendrick Barnes, Walpole.

ERSKINE MASON MEMORIAL PRIZE.

Ernest Luther Converse, Amherst.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Willis Cassius Campbell, West Windham.

WINNER OF INDIVIDUAL PRIZE DRILL.

James William Tucker, '09, Concord.

HONORABLE MENTION.

Abram Lawrence Dean, 1st year, 2 year.

PRIZE SWORD—EXCELLENCE IN DRILL.

Andrew Broggini, '07, Concord.

HONORABLE MENTION.

Frank W. Randall, '07, Portsmouth.

COLOR COMPANY—FALL TERM.

Company B.

Valentine Smith Scholarships are held by—

W. W. Kirkpatrick, '08. Wm. S. Campbell, '09.
J. Glenn Powers, '07. E. D. French, '10.

ROSTER OF BATTALION.

For 1906--1907.

COMMANDANT.

First Lieut. William E. Hunt, Eighth U. S. Infantry.

CADET OFFICERS.

Maj. W. G. Murchie.
First Lieut. and Adjt. J. T. Croghan.
Second Lieut. and Q. M. L. A. Carlisle.
Sergt. Maj. C. F. Cone.
Q. M. Sergt. W. W. Evans.
Color Sergt. R. E. Wadleigh.
Sergt. Signal Corps A. H. Barton.

Company A.	Company B.
Capt. F. W. Randall.	Capt. A. Broggini.
1st. Lieut. F. W. Woodman	1st Lieut. M. C. Huse.
2ndLieut. A. M. Batchelder	2nd Lieut. H. D. Walker.

First Sergeants.

W. L. Adams.	L. H. Kimball.

Sergeants.

G. A. Perley.	O. L. Farwell.
C. D. Kennedy.	G. L. Waite.
H. S. Townsend.	C. S. Wendell.
H. H. Wilkins.	L. L. Smalley.

Corporals.

W. B. Parker.
M. D. Merrill.
R. B. Hammond.
H. E. Wilder.
W. B. Hurlburt.
M. H. Sanborn.
L. A. Pratt.
H. L. Jenness.
C. B. Wilkins.
P. M. Osgood.
A. L. Dean.
E. M. Stevens.

Musicians.

W. F. Langelier.
P. R. Crosby.

Band.

1st Lieut. L. D. Batchelor
Sergeant F. Clough.
Sergeant S. F. Hill.
Corporal M. G. Buss.
Corporal C. L. Wood.
Corporal O. D. Goodwin.
Corporal P. F. Ellsworth.

Principal Musician.
P. R. Berry.

Drum Major.
J. W. Tucker.

REGISTER OF GRADUATES.

NOTE.—The arrangement is: (*a*) Name in full. (*b*) Later degrees taken. (*c*) Residence at time of entering college. (*d*) Occupation, etc. (*e*) Present residence. *Dead. †Present address unknown. Graduates are earnestly requested to inform R. Whoriskey, chairman of the Catalog Committee of any changes that should be made in this list.

DOCTOR OF SCIENCE.

Ned Dearborn, D. Sc, 1901. Curator Field Museum.
Chicago, Ill.

MASTER OF SCIENCE.

Alfred Conradi, M. S., 1902. B. Sc (Ag) '01, O. S. U. Prof. of Zoology; State Entomologist and Entomologist. Experiment Station. *College Station, Texas.*

John I. Randall, M. S. 1906. See class of 1905.

William O. Robinson, M. S., 1906. Mechanical Engineer. See class of 1905.

Lewis H. Kenney, M. E., 1906. See class of 1899.

BACHELORS OF SCIENCE.

1871.

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Retired. *Hampton, N. H.*

Charles Henry Sanders, Penacook. Merchant.
Main Street, Penacook.
3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.
Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.
2—

1873.

†Frederick Erasmus Eldredge, Kensington.
James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School.
43 McCoy Avenue, Campbell, Cal.
Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.
3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*
*Henry Abbott Sawyer, North Weare.
2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*
†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*
Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company Works. *Water St., East Lebanon.*
Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.
206 So. Main Street, Ottawa, Kansas.
Harvey Jewell, Winchester. Fruit Grower and Poultryman.
R. F. D., Cromwell, Conn.
*Charles Ormille Leavitt, Lebanon.
*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.
Eliel Peck, Lebanon, Postmaster.
Kimball, Stearns County, Minn.
Ira William Ramsey, Walpole. *Walpole.*
Orlando Leslie Seward, Keene. Artist.
287 Church Street, Keene.
Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass.*
11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.
329 West 4th St., Los Angeles, California.
†Edmund Lawson Brigham, Jaffrey. Mechanic.
Joseph Warren Butterfield, Westmoreland. Farmer.
North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.
6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder of Railroads. *Main St., Wilmington, Vt.*

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.
Box 56, Gardner, Mass.

7—

1877.

Rollin Kirk Adair, Indian Territory. Retail Groceries.
Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Agt. New York Life Ins. Co. *East Westmoreland.*

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass., Teacher.
334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.
Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.

13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)
73 Green Street, Leominster, Mass.

3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
39 East Broadway, Gardner, Mass., Station A.
Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*
Lucius M. Cragin, Lempster. Farmer.
The Elms, Springfield, Vt.
*Nathaniel Cutler Holmes, Jaffrey.
Fred Charles Park, Lempster. Traveling Salesman.
6 Essex Street, Concord.
George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician.
324 Walnut Street, Newton (Newtonville P. O.), Mass.
6—*1

1880.

Charles Harvey Hood, Derry. Milk Business.
2 Benton Road, Somerville, Mass.
1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.
Bridgman's Block, Keene.
Henry Lyman Barnard, Troy. Clerk. *Troy.*
*George Jordan Boardman, Lawrence, Mass.
Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer.
Ascutneyville, Vt.
Artemas Terald Burleigh. Farmer. *Franklin.*
Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*
Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*
Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*
Frank P. Marston, Hartford, Vt. Investments.
46 Main Street, Hudson, Mass.
William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*
Fred Townsend Stanton, Strafford. Farmer.
R. F. D. No. 1, Rochester, N. H.
Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dakota.*
Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900.

Berlin.

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *1010 Washington St., South Braintree, Mass.*

La Forrest John Carpenter, Surry. Farmer. *R. F. D. No. 1, Shirley, Mass.*

Edwin Preston Dewey, Hanover. Secretary and Manager, Harbor Iron Works. *237 Olive Avenue, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *Care Weather Bureau, Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. Physician. *Clint (El Paso Co.), Texas.*

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883-1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. President and Manager, Raleigh Construction Co. *33 Fayetteville St., Raleigh, North Carolina.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer. *2667 Medary Ave., Columbus, Ohio.*

Frederick Plummer Comings, Lee. Trustee New Hampshire College, 1893-1903. *Lee.*

Frank Harry Follansbee, Canaan. Railway Postal Clerk. *41 Sharon Street, West Medford, Mass.*

Adams Clark French, M. D., D. O., Franklin Falls. Physician. *231 So. Hayne Street, Chicago, Ill.*

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Pharmacist.
Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.
121 Rantoul Street, Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher, Public Schools.
1620 College Avenue, Fort Worth, Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer and Civil Engineer. *South St., Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.
Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. In private business.
Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail, Dorchester and Cohasset.
587-593 Washington Street, Dorchester.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *U. S. Weather Bureau, San Juan, P. R.*

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.
Vernal, Utah.

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895-'97. Farm Superintendent.
Box 173, North Uxbridge, Mass.

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Civil Engineer.
Office, 1750 Monadnock Block, Chicago, Ill.

Edward Alonzo Bailey, West Swanzey. Chair Maker.
55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and Mercantile Fire Insurance Company, 76 William Street, New York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.
St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.
Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890-'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician.
Hotel Buckminster, Commonwealth Ave. and Beacon Sts., Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.
51 North Main St., Concord, N. H.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Maitre au Gymnase de garcon du Gouvernement, Tirnovo, Bulgaria.
Termoro, Bulgaria.

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *85 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law.
Odd Fellows' Building, Nashua.

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department.
3407 Holmead Place, N. W., Washington, D. C.

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster U. S. Weather Bureau. *1631 Nicholas Bldg., Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Manager Western Sprinkler Risk Association.
240 La Salle Street, Chicago, Ill.

George Albert Sanborn, Rochester. Salesman.
34 Pine Street, Rochester.

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer, U. S. Reclamation Service. *Huntley, Montana.*

Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *Government Bldg., Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Sea View Railroad Company and Narragansett Pier Electric Light & Power Company. *Narragansett Pier, R. I.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer and Contractor. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau. *16 East Broad Street, Columbus, Ohio.*

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673-1679 Washington Street, Boston; 529-535 Dudley Street, Roxbury; and 587-593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America. *6 Worcester Square, Boston, Mass.*

Charles Walter Earl Scott, Winchester. Mechanic. *Darrington, Wash.*

David Elmer Stone, Hartford, Vt. Grain Merchant. *Framingham Center, Mass.*

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department. *56 Carmel Street, New Haven, Conn.*

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Expert, U. S. Reclamation Service.
Chamber of Commerce Bldg., Denver, Colo.
†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*
Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*
Clarence Ira Slack, Norwich, Vt. Cashier.
51 North Market Street, Boston, Mass.
4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant.
Hampton.
Russell Marden Everett, Chester. Patent Lawyer and Solicitor.
788 Broad Street, Newark, N. J.
Edward Payson Stone, Canaan Center. Farmer. *Orford.*
3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. R.
Jersey Shore, Penn.
Fred Driggs Fuller, Hanover. Chemist, Pennsylvania Department of Agriculture. *2 N. Court Ave., Harrisburg, Pa.*
Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*
†Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott.
4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station and Lecturer Yale University.
296 McKinley Ave., New Haven, Conn.
Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*
Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor.
13-21 Park Row Building, New York City.
Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Consulting Engineer. *551 Boylston St., Boston, Mass.*
Orrin Moses James, Northwood. State Highway Department.
Northwood Narrows.
Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan.
1008 Oakland Ave., Ann Arbor, Mich.
6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Machinist.
18 Huron St., Providence, R. I.

Frederic William Howe, Hollis. Professor of Chemistry, Food and Dietetics, State Normal School, Framingham, Mass., Scientific Director Walker Gordon Laboratory Co., and Director of Food Laboratory, Boston Floating Hospital.
793 Boylston Street, Boston, Mass.

3—

1895.

Frank Stanley Adams, Gilsum. In office Vermont Farm Machine Company. *35 Atkinson St., Bellows Falls, Vt.*

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Cost-accounting Department). *7 Prospect Street, Claremont.*

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer in construction of Uba Railroad. *602 Rialto Bldg., San Francisco, Cal.*

4—

1896.

Lewis Harris Kittredge, Keene. President the Peerless Motor Car Company.
Quincy Ave. and 93d St., S. E., Cleveland, Ohio.

1—

1897.

Harlan Winifred Barney, Grafton. Business.
112 Myrtle Street, Manchester.

Carrie Augustus Bartlett, Lee. Teacher. *Route 1, Newmarket.*

Mary Blaisdell Bartlett, Epping. Teacher in Biology, Concord High School. *99 North State St., Concord, N. H.*

Walter French Buck, Manchester. Teacher, Milton Academy, Milton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Beverly High School.
78 Essex Street, Beverly, Mass.

Irving Lyford Dennett. Steam Engineer, Corn Products Refining Company. *Hudson Heights, N. J.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Manual Training, Rayen School. *350 Arlington St., Youngstown, Ohio.*

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*

Roscoe Hart Shaw, Milton. Dairy Expert, U. S. Department of Agriculture. *University of Missouri, Columbus, Mo.*

Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers. *Nome City, Alaska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher. *Boston, Mass.*

Everett Sidney Whittemore, Colebrook. Proprietor of North Conway Creamery. *North Conway, N. H.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher, Lee, N. H. *R. F. D., 5, Dover.*

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham. *Durham.*

Burton Albert Corbett, Colebrook. Seed Potato Specialist and Breeder of Holstein-Freesian Cattle. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower *R. F. D. Newmarket, N. H.*

James Alfred Foord, Walpole. Associate Professor of Agromony, Ohio State University. *Columbus, Ohio.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry. *1937 13th Street, N. W., Washington, D. C.*

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *Box 696, Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Electrical Engineer, Kyoto Electric Light Company. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Inspector Penn., N. Y. & L. I. R. R. Co. *195 10th St., Long Island City, New York.*

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Assistant Professor of Mechanics, University of Wisconsin. Member American Society of Testing Materials. *209 No. Brooks, Madison, Wis.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.
93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With Southern Pacific R. R.
560 10th St., Oakland, Cal.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Southern Selling Agent for Geo. D. Mayo Machine Co. *Pleasant St., Laconia, N. H.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.
Berwick, Maine.

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. San Francisco Manager, Crocker-Wheeler Company.
208 First Street, San Francisco, Cal.

Harry Everett Barnard, Nashua. State Chemist, Laboratory of Hygiene, State House, Indianapolis, Ind.

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer. Member of firm Clement & Strange, Engineers and Contractors.
307 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. With Dominion Coal Co.
Box 208, Sydney, Cape Breton, Nova Scotia.

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederick Libbey Horton, Dover. Engineering Department General Electric Company.
35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. Professor of Military Science and Tactics, New Hampshire College. *Durham.*

Lewis Hobart Kenney, M. E., Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.
Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.
209 No. Brooks St., Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops.
Concord.

Etta Lillian Simpson, Durham. Principal Grammar School.
Acushnet, Mass.
12—

1900.

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Co. *404 North Fourth St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School.
Rich Hall, Ashburton Place, Boston, Mass.

Frances Burnham (Mrs. Robert McA. Keown), Durham.
619 Harrison Street, Madison, Wis.

Blanche Mary Foye, Durham. Teacher, French and German.
Concord, Mass.

Charles Elliott Page Mathes. With Birmingham Railway Light & Power Company. *2100 First Ave., Birmingham, Ala.*

Edward Emil Nelson, Nashua. Member of American Institute of Mining Engineers. Engineering and Contracting.
307 Dooley Block, Salt Lake City, Utah.

Alvena Pettee (Mrs. Edward E. Nelson), Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903.
The Progress, South 3d St., Salt Lake City, Utah.

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Ave., Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.
Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.
Los Angeles, Cal.

Robert Morrill Wright, Hill. Dealer in Flour, Feed, Grain and Hay. *Hill.*
12—

1901.

Henry Harold Calderwood, Nashua. Turbine Assembly Department with General Electric Co.
428 Central Street, Saugus, Mass.

Charles Henry Courser, Warner. Chief Engineer, Wheelwright Paper Mills, Hardwick, Leominster and Fitchburg.
Leominster, Mass.

Alice Emerson Dorr, Dover. *35 Summer Street, Dover.*

Harry Willis Evans, Portsmouth. With the Chicago Edison Co. *550 La Salle Avenue, Chicago, Ill.*

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery. *15 Lexington Street, Dover.*

Charles Almon Hunt, Nashua. Second Lieutenant, Twelfth U. S. Infantry. *Fort Porter, Buffalo, New York.*

Edwin Price Jewett, Lakeport. In charge of Prescription Department Walker Gordon Laboratory Co. *2112 Michigan Avenue, Chicago, Ill.*

Robert McArdle Keown, Pomona, Fla. Instructor in Machine Design, University of Wisconsin. *University of Wisconsin, Madison, Wis.*

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Rugby Academy. *4803 St. Charles Avenue, New Orleans. La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City.

Edson Albert Straw. With the A. K. Co. Box Dept. *Ashland.*

13—

1902.

Mary Doe, (Mrs. Charles H. Ayres), Rollinsford. *404 West 116th St., New York City.*

Edwin W. Gilmartin, Nashua. Engineering Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

John C. Kendall, Peterborough. Assistant Professor of Dairy Husbandry, North Carolina College of Agriculture and Mechanic Arts. *West Raleigh, N. C.*

Harry M. Lee, Moultonborough. Foreman Buena Vista Farm. *Windsor, Vt.*

Abiel A. Livermore, Wilton. Rose Grower with J. A. Budlong & Son Co. *153 Greenwood St., Auburn, R. I.*

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Inspector for Gypsy Moth in Department of Agriculture. *Indian Rock Farm, Hampton Falls.*

Charles A. Payne, Portsmouth. Engineering Department, General Electric Company. *8 Rhodes Ave., Lynn, Mass.*

Eugene P. Runlett, Durham. With Williams & Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Bureau Internal Revenue, U. S. Treasury Department.
1461 Chapin Street, N. W., Washington, D. C.
9—

1903.

Harry David Batchelor, West Upton, Mass. Chief Chemist, Sharon Coke Works, South Sharon, Pa.
Box 491, Sharon, Pa.
Edgar Forest Bickford, Rochester. Electrical Engineer.
6353 Aurelia Street, Pittsburg, Pa.
Frank Ray Brown, Durham. Instructor, New Hampshire College, Durham.
Everett William Burbeck, Haverhill. Engineer with Oliver Iron Mining Co. *Adams Spruce Mine Office, Eveleth, Minn.*
Everett Garfield Davis, Newmarket. Order Dept., E. E. Gray & Co., Wholesale Groceries. *24 Union Park, Boston, Mass.*
Albert Noah Otis, Durham. With Ford, Bacon & Davis, Consulting Engineers and Contractors. *24 Broad St., N. Y. City.*
806 Gay St., Knoxville, Tenn.
Ralph Harvey Rollins, East Concord. Engineer U. S. Reclamation Service. *Hazen, Nev.*
Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass.
9 Allston Street, Somerville, Mass.
David Albert Watson, Durham. Farming.
R. F. D. No. 1, Durham.
Melvin Johnson White, Farmington. Instructor of American History and Civics in High School.
116 East Johnson Street, Madison, Wis.
10—

1904.

Leander Ashton Pittsfield. Carnation Grower.
High Street. Framingham Center, Mass.
Walter Allen Barker, Pittsfield. Civil Engineering Department, B. & A. R. R. *Room 372, South Station, Boston, Mass.*
Edgar Charles Bickford, Durham. B. E. Ry. E. E. Office.
552 Harrison Ave., Boston, Mass.
Percy Anderson Campbell, Litchfield. Assistant, Dept. of Animal Husbandry, University of Maine. *Orono, Maine.*
Carroll Winfred Farr, North Weare. Dairy Farmer.
North Weare.

Joseph Ezra Goodrich, New Durham. Instructor of Mathematics and Science, Norwood High School.
39 Cottage St., Norwood, Mass.

George Herbert Hill, La Crosse, Wis. Mechanical Inspector with Chicago, Burlington & Quincy R. R.
C. B. & Q. Laboratory, Aurora, Ill.

Thomas Jefferson Laton, Nashua. Turbine Testing Department, General Electric Company.
428 Central Street, Cliftondale, Mass.

Raymond Louis Lunt, Dover. Telephone Engineer, Western Electric Co. *463 West St., New York City.*

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School. *Woodbine, New Jersey.*

Samuel Ambrose Richardson, Charlestown. Foreman for G. M. Gest, Conduit Contractor. *277 Broadway, New York City.*

1905.

John Henry Chesley, Rockingham. Turbine Testing Department, General Electric Company.
77 Mall Street, West Lynn, Mass.

Cleon Orestes Dodge, Sunapee. Chemist, Sharon Coke Company, Sharon, Pa. *Box 491, Sharon, Pa.*

Silas Bryden Hayden, South Natick, Mass. Illinois Steel Company. *506 La Salle Avenue, Chicago, Ill.*

Harry Linwood Hayes, Exeter. Construction Force. Boston Office, General Electric Company.

Warren Chauncey Hayes, Durham. *Durham.*

Fred Harvey Heath, Warner. Student in Graduate School of Yale University and Asst. in Organic Chemistry in Kent Laboratory.
P. O. Box 712, Yale Station, or 648 E. Divinity Hall, New Haven, Conn.

Harold Nims Knight, Marlborough. Graduate Asst. in Animal Husbandry, Iowa State College. *Station A, Ames, Iowa.*

Joseph Wesley Moreton, Medford, Mass. Engineering Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360, East Pittsburg, Pa.

Orlo Dudley Mudgett, Gilmanton. Testing Department, Westinghouse Electric & Manufacturing Company.
P. O. Box 360, East Pittsburg, Pa.

Horace James Pettee, Durham. Draftsman, Illinois Steel Co.
550 La Salle Avenue, Chicago, Ill.

Arthur Mahlon Pike, Dover. Turbine Dept., General Electric Co., Lynn, Mass. *77 Mall St., West Lynn, Mass.*

Fred Silver Putney, Hopkinton. Assistant in Agriculture.
Box 149, State College, Penn.

John Leslie Randall, M. S., Lee. Sub-Master High School, Principal Evening School. *62 Prescott St., Clinton, Mass.*

William Orrin Robinson, M. S., Marlborough. Scientific Assistant, Bureau of Soils, Dept. of Agriculture.
Washington, D. C.

Harry Union Russell, West Derry. Student in Graduate School, University of Wisconsin, Private Secretary to Prof. Reinsch.
423 Wisconsin Avenue, Madison, Wis.

Elmer Seth Savage, Lancaster. Instructor in Dairying, Baron de Hirsch School. *Woodbine, N. J.*

Castine Caroline Swanson, Cambridge, Mass. Teacher of Science, Music and Drawing, Franklin High School.
17 Upland Road, Cambridge, Mass.

Frank Alvin Tinkham, Grafton. Assistant in Dairying, New Hampshire College. *Durham.*

1906.

Samuel Taylor Adams, Pittsfield. Instructor in Physics and Electrical Engineering, New Hampshire College.
Durham, N. H.

Stuart Kendrick Barnes, Walpole. Chemist, Sharon Coke Works.
P. O. Box 491, Sharon, Pa.

Charles S. Batchelder, South Hampton. Market Gardening.
Waban, Newton Centre, Mass.

*Willis Cassius Campbell, West Windham.

John Dustin Clark, Nashua. Student Assistant in Chemistry, New Hampshire College. *Durham, N. H.*

Clarence Elbert Clement, Derry. Dairyman.
Cherry Hill Farm, Beverly, Mass.

Ernest Luther Converse, Amherst. Instructor in Sciences, Virginia Institute. *Bristol, Va.*

Neil Starr Franklin, Bernardston, Mass. With Westinghouse Electric and Manufacturing Co.
No. 1105 South Avenue, Wilkinsburg, Pa.

Carl Tilson Fuller, Nashua. Chemist, Research Laboratory, General Electric Co. *Schenectady, N. Y.*

William Safford Gooch, Exeter. Engineering Department, New England Tel. and Tel. Co. *No. 101 Milk St., Boston, Mass.*

Ralph Edward Gowen, Stratham. With Westinghouse Electric and Manufacturing Co. *1105 South Ave., Wilkinsburg, Pa.*

Edwin Davis Hardy, Nashua. Turbine Department, Westinghouse Machine Co. *1116 South Ave., Wilkinsburg, Pa.*

Cyrus Fremont Jenness, Gonic. Market Gardening.
Waban, Newton Centre, Mass.

Allen Montague Johnson, Nashua. With Westinghouse Electric and Manufacturing Co. *1116 South Ave., Wilkinsburg, Pa.*

Wallace Fuller Purrington, South Yarmouth, Mass. Assistant Chemist, Rhode Island College Agricultural Experiment Station. *Kingston, R. I.*

Edwin Jay Roberts, Laconia. *172 Union Ave., Laconia, N. H.*

Roy Vance Swain, Barrington. With Autocar Company.
45 Wyoming Avenue, Ardmore, Pa.

Charles Leo Tuttle, Exeter. Engineering Department, New England Tel. and Tel. Co. *101 Milk St., Boston, Mass.*

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) With Sacramento Gas, Electric & Railway Company.
3219 Magnolia Ave., Oak Park, Sacramento, Cal.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. 1902.) Florist, New Hampshire College.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Homedale Farm. *Chester.*

†Thornton N. Weeks, Greenfield. (1902.)

Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.

Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros.
6022 Princeton Avenue, Chicago, Ill.

†Harry Garfield Brierley. (1903.) Dover.

†George Grover Manning. (1903.) Boston, Mass.

†James Henry Nixon. (1903.) East Brentwood.

†Roscoe Franklin Swain. (1903.) South Hampton.

Erland Graves Batchelder. (1904.) Wilton. Dairying and Gardener, Kimball Heights Farm.
R. F. D. No. 3, Wilton, N. H.

Wesley Pillsbury Flint. (1904.) Forester with H. G. Frost & Co., 6 Beacon St., Boston, Mass. *Newburyport, Mass.*

Henry Marston Shurbert. (1904.) Northwood Ridge. Gardener, W. B. H. Dowse Estate.
218 Temple Street, West Newton, Mass.

Arthur G. Dunn. (1905.) Harrisville. Manager of Mine Brook Farm. *R. F. D., Medfield, Mass.*

Henry N. Gowing. (1905.) Dublin. Poultryman and Fruit Grower. *Dublin, N. H.*

Alfred Walter Clough. (1906.) *Greenland.*

Oliver Carter Dimond. (1906.) West Concord. Farmer.
R. F. D. No. 2, West Concord.

Ralph Wayne Forristall. (1906.) Alstead. Farmer. *Alstead.*

Stanley Hargreaves. (1906.) Foreman, Forest Park, Springfield, Mass.

Robert S. Sawyer. (1906.) Farmer. *Walpole, N. H.*

SUMMARY.

Graduates, Bachelors of Science, 1871-1905	295
Graduates, Two Years' Course	30
Agriculturists	57
Architects	1
Business Pursuits	58
Chemists	9
Clergyman	1
Civil, Mechanical, Electrical and Mining Engineers	46
Draftsmen	5
Graduate Students	4
Lawyers	5
Manufacturers and Mechanics	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	17

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adams, S. T., 1906.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barnes, S. K., 1906.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, C. S., 1906.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year,) 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Campbell, W. C., 1906.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
Chesley, J. H., 1905.

* Dead.

*Chubert, C. O., 1877.
Clark, J. D., 1906.
Clement, C. E., 1906.
Clement, H. E., 1899.
Clough, A. W. (2 year), 1906.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Conradi, Albert M. S., 1902.
Converse, E. L., 1906.
Corbett, B. A., 1898.
Courser, C. H., 1900.
Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Cushman, R. L. (2 year), 1901.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dearborn, N., D. Sc., 1901.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Demond, O. C. (2 year), 1906.
Dodge, C. O., 1905.
Doe, Miss Mary, 1902.
Dorr, Miss A. E., 1901.
Dunn, A. G. (2 year), 1905.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W., 1904 (2 year), 1902.
Farwell, H. G., 1901.
*Flint, W. F., 1877.
Flint, W. P. (2 year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Forristall, R. W. (2 year), 1906.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
Franklin, N. S., 1906.
French, A. C., 1883.
Fuller, C. T., 1906.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Gooch, W. S., 1906.
Goodrich, J. E., 1904.
Gowen, Miss E. G., 1901.
Gowen, R. E., 1906.
Gowing, H. N. (2 year), 1905.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, E. D., 1906.
Hardy, M. F., 1874.
Hargreaves, S. (2 year), 1906.
Harvey, J. E., 1886.
Hayden, S. B., 1905.
Hayden, W. D. F., 1899.
Hayes, H. L., 1905.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hayes, W. C., 1905.
Hazen, A., 1885.
Hazen, C. H, 1881.
Hazen, W. N., 1888.

* Dead.

Heath, F. H., 1905.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, G. H., 1904.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
Jenness, C. F., 1906.
Knight, H. N., 1905.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Johnson, A. M., 1906.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.
Knight, H. N., 1905.
Knowles, A. C. (2 year), 1900.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, A. R., 1904.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Moreton, J. W., 1905.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mudgett, O. D., 1905.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2 year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Otis, A. N., 1903.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Pettee, H. J., 1905.
Pike, A. M., 1905.
Porter, G. E., 1888.
Preston, J. F., 1890.
Purrington, W. F., 1906.
Putney, F. S., 1905.

* Dead.

Putney, H. N., 1899.
Quimby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Randall, J. L., 1905.
Record, C. E., 1878.
Richardson, H. P., 1898.
Richardson, S. A., 1904.
Roberts, E. J., 1906.
Robertson, Miss M. L., 1900.
Robinson, W. O., 1905.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Russell, H. U., 1905.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
Savage, E. S., 1905.
Savage, H. N., 1887.
*Sawyer, H. A., 1874.
Sawyer, R. S. (2 year), 1906.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Shurbert, H. M. (2 year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2 year), 1903.
Swain, R. V., 1906.
Swanson, Miss C. C. 1905.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tinkham, F. A., 1905.
Tolles, B. D., 1898.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Tuttle, C. L., 1906.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.
Wason, E. H., 1886.
Watson, D. G., 1903.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
White, M. J., 1903.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

* Dead.

SPECIMEN ENTRANCE EXAMINATION PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define Algebra, formula, radical, imaginary, degree of equation, simultaneous equations.

2. Explain negative exponents.

Divide $x^{-3}-1$ by $x^{-\frac{9}{4}}-x^{-\frac{3}{2}}+x^{-\frac{3}{4}}-1$.

3. Factor $6x-21y^{2}x-8y+28y^{3}$; $1-25x^{2}y^{2}$; $x^{2}+x-6$; $a^{5}-b^{5}$; $a^{3}+b^{3}$; $x^{3}+2x^{2}-x-2$.

4. $3ax+b+cx-2d=0$. Solve for x.

$3y+7x=10$. $2x-2y=3$. Solve for x and y.

5. Find square root of $4x^{4}-4x^{3}-3x^{2}+2x+1$; of $9+2\sqrt{8.}$

6. Multiply $3\sqrt{-3}$; $-2a\sqrt{b}$; $-3b\sqrt{3c}$; $-2c\sqrt{2ab.}$

Rationalize denominator of $\dfrac{\sqrt{2}-\sqrt{3}}{\sqrt{2}+\sqrt{3}}$

7. $3x^{2}-5x+10=0$. Solve for x.

$3ax^{2}-2x+3bx+c+7=0$. Solve for x.

8. $(x+3b)^{5}$. Expand by binominal formula.

9. A man's age plus that of his wife is 95 years. 40 years ago he was twice as old as she was then. What are their ages now? State the above.

10. A boat's crew can row 9 miles down a river and back in 4 hours. The rate of rowing in still water is double the rate of the current. Find the rate of rowing and the rate of the current. State the above.

PLANE GEOMETRY.

1. Define isosceles triangle, parallelogram, rhombus, trapezoid, limit of a variable.

2. If two parallel lines be cut by a third straight line, the sum of the two interior angles on the same side of the secant line is equal to two right angles. Demonstrate.

3. The three bisectors of the three angles of a triangle meet in a point. Demonstrate.

4. The sum of the interior angles of a polygon is equal to two right angles, taken as many times less two as the figure has sides. Demonstrate.

5. The radius perpendicular to a chord bisects the chord and the arc subtended by it.

6. Given a side of a triangle, its vertical angle, and the radius of the circumscribing circle; construct the triangle.

7. If a line be drawn through two sides of a triangle parallel to the third side, it divides those sides proportionally.

8. To find a mean proportional between two given lines. Demonstrate.

9. Construct a square equivalent to the sum of a given triangle and a given parallelogram.

10. A ten-inch water pipe discharges 200 gallons a minute. What is the diameter of a pipe that discharges 800 gallons a minute under the same pressure?

SOLID GEOMETRY.

1. A plane perpendicular to each of two intersecting planes is perpendicular to their intersection. Demonstrate.

2. An oblique prism is equivalent to a right prism, having for its base a right section of the oblique prism, and for its altitude a lateral edge of the oblique prism. Demonstrate.

3. Find the ratio of the volumes of two rectangular parallelopipeds, whose dimensions are 8, 12, and 21, and 14, 15, and 24, respectively.

4. A triangular pyramid is equivalent to one-third of a triangular prism having the same base and altitude. Demonstrate.

5. The volume of a truncated triangular prism is equal to the product of a right section by one-third the sum of the lateral edges. Demonstrate.

6. Find the lateral edge, lateral area, and volume of a frustum of a regular triangular pyramid, the sides of whose bases are 18 and 6, respectively, and whose altitude is 24.

7. The sum of the squares of the four diagonals of a parallellopiped is equal to the sum of the squares of its twelve edges.

8. In two polar triangles, each angle of one is measured by the supplement of that side of the other of which it is the pole. Demonstrate.

9. If the unit of measure for angles is the right angle, the area of a spherical triangle is equal to its spherical excess, multiplied by the area of a tri-rectangular triangle. Demonstrate.

10. How many cubic feet of metal are there in a hollow cylindrical tube 18 ft. long, whose outer diameter is 8 in., and thickness 1 in. ? (Find the difference of the volumes of two cylinders of Revolution. $\overline{\prod}=3.1416$.)

PLANE TRIGONOMETRY.

1. Write tan. $(x+y)$; sin. $(x-y)$; cos. $(2x)$; sin. $(2x)$.

2. Prove sin. $2x=\dfrac{2 \text{ tan. } x}{1+\text{tan. }^2x}$

3. $51° 20'$. Change to radians.

   $5/4\ \overline{\prod}$ Change to degrees.

4. Construct approximate line values of trigonometric functions of angle of 120 degrees.

5. In oblique plane triangle ABC the three sides a, b, c, are given. Write formula for Angle A.

6. The parallel sides of a trapezoid are 26 and 132, and the angles at the extremities of the latter are 53 degrees, 49 minutes and 67 degrees, 55 minutes. Write the formulas for the non-parallel sides.

BOTANY.

1. Describe the form, structure and reproduction of a particular crypotogamous, or flowerless, plant.

2. What are the following and what part does each play in the life of the plant; chlorophyll, stoma, epidermis, root-hair, protoplasm?

3. Describe an exogenous stem as seen in cross-section. How does it differ from an endogenous stem?

4. Give the meaning of the following; plumule, cotyledon, radicle, testa, epidermis.

5. What is the difference between a fruit and a seed? Name four kinds of fruit and give an example of each.

6. Define corolla, anther, stigma, pistil, sepal, spike, tendril.

7. What is a tuber? A bulb? A stolon? A bract? A node? A petiole? Give an example of each.

ENGLISH.

Where and how long have you studied English? What text books did you use?

Write about one hundred words on each of the following questions, paying great attention to the composition and punctuation.

1. The appearances of the supernatural in Macbeth.
2. The moral teaching of Silas Marner.
3. The death of Sir Roger.
4. The outline of Burke's Speech.
5. The historical situation at the time Burke's Speech was given.

ELEMENTARY FRENCH. (One hour and a half.)

A. Where and how long have you studied French? How many periods per week? What books have you used?

I.

(Translation must be close, but clear and idiomatic English is required.)

Translate:—

"Un jeune seigneur heureusement né n'est ni peintre, ni musicien, ni architecte, ni sculpteur; mais il fait fleurir tous ces arts en les encourageant par sa magnificence: il vaut sans doute mieux les protéger que de les exercer. Il suffit que M. le marquis ait du goût; c'est aux artistes à travailler pour lui; et c'est en quoi on a très grand raison de dire que les gens de qualité (j'entends ceux qui sont très riches) savent tout sans avoir rien appris, parce qu'en effet, ils savent, à la langue, juger de toutes les choses qu'ils commandent et qu'ils paient."

II.

Je suivis la foule, mais ce n'était qu'une fausse sortie. J'avais laissé mon chapeau dans une encoignure,—un chapeau haut de forme qui m'avait considérablement gêné pendant toute la soirée. Je rentrai sous prétexte de le reprendre et, comme j'étais un peu de la maison, les domestiques ne se méfièrent pas de moi. D'ailleurs ils étaient occupés à transporter à l'office la vaisselle et les verres qui avaient servi aux soupeurs, et à un certain moment, je me trouvai seul près du buffet. Il n'y avait pas une minute à perdre. Après un furtif coup d'oeil à droite et à gauche, je m'approchai de la corbeille, je fis rouler prestement deux pêches dans mon chapeau, puis je quittai la salle à manger.

III.

L'excessive pesanteur de cet homme dans la destinée humaine troublait l'equilibre. Cet individu comptait à lui seul plus que le groupe universal. Ces pléthores de toute la vitalité humaine concentrés dans une seule tête, le monde montant au cerveau d'un homme, cela serait mortel à la civilisation, si cela durait. Le moment ètait venu pour l'incorruptible équité suprême d'aviser. Probablement les principes et les éléments, d'ou dépendent les gravitations régulières dans l'ordre morale comme dans l'ordre matériel, se plaignaient. Le sang qui fume, le trop-plein des cimetières, les mères en larmes, ce sont des plaidoyers redoutables.

IV.

Prin. parts;—1) aller; 2) vaincre; 3) s'asseoir; 4) venir; 5) recevoir; 6) voir; 7) mettre; 8) écrire; 9) vouloir; 10) pouvoir.

Translate:—

V.

1. It is time to get up now.
2. Our country cousins have been at our house for four days.
3. We are going to visit our friends in the country.
4. Today it is hot.
5. Have you any books? I have none.
6. Give me some.
7. It is the twentieth of June, nineteen hundred and six.
8. What time is it? It is two o'clock.
9. With whom are you going to Boston?
10. My watch is prettier than the one you have.

ELEMENTARY GERMAN. (One and one-half hours.)

A. Where and how long have you studied German? What text books did you use?

I.

The translation must be close; but clear and idiomatic English is required.

Translate:—

Herr Philipp Simonis war ein entfernter Vetter meines Vaters und damals, als ich ihn kennen lernte, ein Mann von etwa fünfundfünfzig Jahren. Er hatte Theologie und Philologie studiert und war dann als Hofmeister eines reichen jungen Grafen nochmals mit diesem auf die Universität gezogen und später auf Reisen mit ihm weit in der Welt herumgekommen. Der zu allen brauchbare Mann hatte dann auf längere Zeit einen sehr gut dotierten Vertrauensposten als Sekretär des jungen Grafen eingenommen und sich im Laufe der Zeit durch Sparsamkeit ein kleines Vermögen erworben. Als er durch den Tod seines früheren Zöglings diesen Posten verlor, kam er zu meinen Eltern nach Steinhusen auf Besuch. An diesem Orte gefiel es ihm wohl, und er wurde bald mit so vielen Fäden an ihm geknüpft, dass er dort hängen blieb.

II.

Seit wir in die heisse Zone eingetreten waren, konnten wir jede Nacht die Schönheit des südlichen Himmels nicht genugsan bewundern, welcher in dem Masse, als wir nach Süden vorrückten, neue Sternbilder vor unsern Augen entfaltete. Man hat ein wunderbar bekanntes Gefühl, wenn man bei der Annäherung gegen den Aquator, und besonders wenn man von der einen Hemisphere in die andere übergeht, allmählich die Sterne niederer werden und zuletzt verschwinden sieht, welche man von seiner ersten Kindheit an kennt.

III.

Er setzte sich hin, um zu arbeiten, aber er hatte keine Gedanken. Nachdem er es eine Stunde lang vergebens versucht hatte, ging er ins Familienzimmer hinab. Es war niemand da, nur kühle grüne Dämmerung; auf Elisa-

beths Nähtisch lag ein rotes Band, das sie am Nachmittag um den Hals getragen hatte. Er nahm es in die Hand, aber es that ihm weh, und er legte es wieder hin. Er hatte keine Ruhe, er ging an den See hinab und band den Kahn los; er ruderte hinüber und ging noch einmal alle Wege, die er kurz vorher mit Elisabeth zusammen gegangen war.

IV.

Prin parts:—1) laufen; 2) fahren; 3) gehen; 4) helfen; 5) gelingen; 6) ziehen; 7) schneiden; 8) vergessen; 9) sein; 10) tun.

Inflect:—1) Present of geben; 2) imperfect of sehen; 3) perfect of sein.

VI.

Translate:—

1. Today is the fourteenth of June, nineteen hundred and six.
2. In summer the days are longer than in winter.
3. A week ago I was at home.
4. The boy drank two glasses of milk.
5. What time is it? It is half past nine.
6. I should like to go.
7. She is said to be very old.
8. I shall write to you as soon as you will let me know where you live.
9. When it struck four o'clock, he stepped into the house.
10. He went fishing.

ELEMENTARY LATIN. (2 hours.)

A. Where and how long have you studied Latin? What text books did you use?

I.

(The translation should be close; but clear and idiomatic English is required.)

Translate:—

(Labienus sends the tenth legion as a relief to the Romans).

Caesar, cum septimam legionem, quae juxta constiterat, item urgeri ab hoste vidisset, tribunos militum monuit, ut paulatim sese legiones conjungerent et conversa signa in hostes inferrent. Quo facto cum alius alii subsidium ferret, neque timerent, ne aversi ab hoste circumvenirentur, audacius resistere ac fortius pugnare coeperunt. Interim milites legionum duarum, quae in novissimo agmine praesidio impedimentis fuerant, proelio muntiato cursu incitato in summo colle ab hostibus conspiciebantur, et T. Labienus, castris hostium potitus et ex loco superiore, quae res in nostris castris gererentur, conspicatus deciman legionem subsidio nostris misit. (Caesar's Gallic War II. 26.)

II.

1. In I explain fully *vidisset.*
2. Explain fully *conjungerent* in I.
3. Explain fully *quo* in I.
4. Prin. parts; (a) constiterat; (b) vidisset; (c) facto; (d) ferret; (e) misit.
5. Decline in singular and plural; (a) militum; (b) alius; (c) res.

III.

(At sight)

Atque cum Caesar eo die in senatum venisset, absidentem conjurati specie effici circumsteterunt ilicoque unus, quasi aliquid rogaturus, propius accessit renuentique ab utroque umero togam apprehendit. Deinde clamantem, "Ista quidem vis est," Casca, unus e conjuratis, adversum volnerat paulum infra jugulum.

ADVANCED LATIN. (2 hours).

A. Where and how long have you studied Latin? What books have you used?

I.

(The translation should be close; but clear and idiomatic English is required.)

(Aeneas warned to flee)

Ut primum alatis tetigit magalia plantis.
Aeneam fundantem arces ac tecta novantem
Conspicit; atque illi stellatus jaspide fulva
Ensis erat, Tyrioque ardebat murice laena
Demissa ex umeris, dives quae munera Dido
Fecerat, et tenui telas discreverat auro.
Continuo invadit: 'Tu nunc Karthaginis altae
Fundamenta locas, pulchramque uxorius urbem
Extruis, heu regni rerumque oblite tuarum?

Virgil IV—258—267.

II.

Diffugimus visu exsangues; illi agmine certo
Laocoonta petunt; et primum parva duorum
Corpora natorum serpens amplexus uterque
Implicat, et miseros morsu depascitur artus;
Post ipsum auxilio subeuntem ac tela ferentem
Corripiunt, spirisque ligant ingentibus; et jam
Bis medium amplexi, bis collo squamea circum
Terga dati, superant capite et servicibus altis.

Virgil II—212—220.

III.

Write about five characters (five lines each) in Virgil.

IV.

(The conspiracy now thwarted)

Nunc quoniam, Quirites, consceleratissimi periculosissimique belli nefarios duces captos jam et comprehensos tenetis, existimare debetis omnis Catilinae copias, omnis spes atque

opes, his depulsis urbis periculis, concidisse. Quem quidem ego cum ex urbe pellebam, hoc providebam animo, Quirities, —remoto Catilina, non mihi esse P. Lentuli somnum, nec L. Cassi adipes, nec C. Cethegi furiosam temeritatem pertimescendam. (Cicero, Third Oration against Catiline VII. 16.)

HISTORY I. (American.)

A.

Give account of collateral reading.

B.

1. Give an outline of the life of Columbus, including (a) the question of his knowledge of previous discoveries, (b) the reasons for wishing to discover a new route, (c) the history of his attempts and failures before getting ships, (d) an account of each of his voyages and the discoveries made.

2. Give an account of the discoveries and explorations of (a) Cartier, (b) De Soto, (c) Ponce de Leon, (d) Balboa, (e) Magellan.

3. Give some account of each of the following and state the part taken by each in the history of the country, (a) Roger Williams, (b) Lord Baltimore, (c) LaSalle.

4. Give (a) the history of the New England Confederation, (b) an outline of the wars with the French 1689-1748.

5. Give an account of Burgoyne's expedition. Give an account of the political results that followed the latter.

6. When and for how long was Washington president? Give an account of political parties of that time. Give an account of the life work of Alexander Hamilton.

7. Give an account of the X. Y. Z. papers. Give an account of the Alien and Sedition Laws.

8. Give some account of each of the following,—(a) Erie Canal, (b) Missouri Compromise, (c) Monroe Doctrine, (d) war with Tripoli, (e) Aaron Burr.

HISTORY I. (American.)

9. Give a brief account of the principal historical events connected with each of the following,—(a) Major Anderson, (b) Merrimac (ship), (c) Vicksburg, (d) Gettysburg, (e) Bull Run.

10 Congress consists of what branches? Constitutional provisions for the election of the members of each branch? Elected for how long? Qualifications? Vacancies how filled?

11. Fully state the constitutional provisions for the elections of President and Vice-President.

HISTORY.

2. Ancient History.

1. (a) Name three important islands or groups of islands in the Aegean Sea. (b) Name the important island near the eastern coast of Greece. (c) Name some important island near the western coast of Greece. (d-e) Name the historically important island midway between Greece and Egypt. Give a brief account of the important traditions and the early history of that island.

2. Give a brief account of the history and the influence of the Delphian oracle. (b) Describe the three classes of people in Sparta. (c-d) Give a description of the government of Sparta. (e) What was the myth of Lycurgus?

3. The Persian Invasion: (a) Give brief account of principal expedition sent by Darius; (b-c) Give brief accounts of the four important battles resulting from the invasion of Xerxes; (d-e) Give an outline of collateral reading on the Persian Invasion.

4. Give outlines of life and public services of each of the following: (a) Pericles; (b) Alcibiades; (c) Socrates; (d) Xenophon; (e) Epamimondas.

5. (a) Describe the causes in Rome leading to the establishment of the tribunate. (b-c) Give the history and character of the laws of the twelve tables. (d) Give an

account of the war with the Greeks (Pyrrhus). (e) State the general fact about Roman road making.

6. (a-c) Give brief outlines of the three wars between Rome and Carthage. (d) Explain the Roman provincial system. (e) Give brief accounts of Marius and Sulla.

7. Give some account of five books used for collateral reading in Ancient History.

Note. Students who have given two full years to the study of Ancient History and have passed this examination, can make a special arrangement in regard to an additional examination which will give them the credit of an additional unit. See Catalog.

HISTORY.

3. English History.

1. Draw an outline map, or outline maps of the British Isles showing (a) The most important physical features; (b) The wall of Hadrian; (c) The wall of Antonine; (d) The seven kingdoms; (e) The situation of five important cities.

2. Give brief accounts of (a) The Roman conquest of Britain; (b) the character of the Roman influence; (c) results of the Roman withdrawal; (d) remains of Roman occupation; (e) account of three books treating of the Romans in Britain.

3. (a) Describe the early Germans. (b) Give brief account of the Anglo-Saxon Conquest. (c) Give brief account of the Danish conquest. (d) Give brief account of the Norman conquest. (e) Give an account of the poem of Beowulf.

4. (a-c) Give a brief account of the religious changes made by Henry VIII, Mary Tudor and Elizabeth. (d) Give some account of the literature of the time of Elizabeth. (e) Give some account of agriculture and the manufactures under the Tudors.

5. (a-b) Give a brief but comprehensive account of Magna Charta. (c) State the substance of the Petition of

Right. (d) State the substance of the Habeas Corpus Act. (e) State the substance of the Bill of Rights.

6. (a) Give a brief account of the Reform Bill of 1832. (b) Explain what the corn laws were. (c) Give in order with approximate dates the Hanoverian rulers. (d) Give an explanation of the power of parliament and the methods of controlling Parliament. (e) In a few sentences give some account of three books of value in explaining the England of the nineteenth century.

HISTORY.

4. Mediaeval and Modern History.

1. (a) Give some account of the personal characteristics of Charlemagne. (b) Mention some special authority on the life of Charlemagne. Name three books treating of the period of Charlemagne. (c) Give a brief account of his wars with the Saxons and Lombards. (d) Draw map showing the partition of Verdun. (e) What were the general characteristics of the descendants of Charlemagne?

2. (a-b) Give an explanation of the terms benefice, lord, vassal and subvassal; and the relations of feudalism. (c) Explain the importance of feudalism from a military and social point of view. (d) Give some reasons for feudalism. Name the nations that best illustrated its characteristics. (e) Name three books which give some account of feudalism.

3. (a) Explain the reasons for the Crusades:—(b) Give a brief account of third Crusade; (c) Give a brief account of fourth Crusade; (d) Give some account of the three religious-military orders; (e) Name three books treating of the Crusades.

4. (a) Give a brief account of principal causes of the Thirty Years' War. (b) Give brief account of the Bohemian election; (c) Of the end of Danish period; (d) Give a brief account of the last campaign of Gustavus Adolphus; (e) Give an account of the Peace of Westphalia.

5. Explain the territorial settlement of Europe made by the Congress of Vienna. (b) Explain the influence of Czar Alexander in regard to The Holy Alliance. (c) Give an account of the July Revolution in Paris, 1830. (d) Give an account of the February Revolution in Paris, 1848. (e) Explain how the Third Republic was established in France.

6. (a) Give a brief account of the Crimean War. (b) State the causes of the Russo-Turkish War of 1877-78. (c) Explain the work done by Congress of Berlin, 1878. (d) Draw map showing states of south-eastern Europe after 1878. (e) Give some account of three books dealing with parts of questions 5 and 6.

PHYSICAL GEOGRAPHY.

1. State the causes of the variations in season, climate, day and night.

2. What are ocean currents? How are they caused? Trace two important currents and state the influences exerted by each upon climate and civilization.

3. What are tides? How are they caused? Give causes for the variations in tidal height.

4. What is meant by erosion? How is it accomplished and what changes does it make in the topography of a country?

5. Discuss the glacial period and the results produced by it.

6. State briefly in what region active volcanoes are to be found. Give an explanation of volcanic eruptions. What are geysers? Locate two famous geyser regions.

7. Discuss trade winds and anti-trade winds.

ZOOLOGY.

1. Describe the structure and mode of growth of Amoeba. To what class does Amoeba belong? How does this class differ from others.

2. Describe the structure and method of use of the apparatus by which the clam respires.

3. To what class does the clam belong? What other animals belong to this class? How do they differ from the clam?

4. To what class does the earthworm belong? How does this class differ from others?

5. Describe the internal structure of the earthworm.

6. Define an insect. How does an insect differ from the crayfish or lobster, from a spider, from a myriapod?

7. Name the different orders of insects and give common examples of each.

8. Contrast the life history of a butterfly and grasshopper, naming the stages in the life of each.

9. What distinguishes the vertebrate animals from all others. Name and define as best you can the different orders of vertebrates.

10. Describe the circulatory system of a mammal.

PHYSICS.

1. Define: Mechanics, inertia, elasticity, acceleration, kinetic energy, and absolute density of a solid. Why does a flywheel help to steady the motion of running machinery? Two forces at right angles to each other,—one constant, the other variable, are acting on the same body. Show by a sketch the form of path traversed by the body in motion.

Describe the different kinds of equilibrium. How do you account for the fact that a rain drop may be seen while falling even though it has fallen from a cloud a mile or two high? Name the simple machines. State Archimede's Principle. State the laws of hydrostatic pressure. Explain the siphon.

2. Define: Sound,—an echo, overtones, and interference. Distinguish between noise and music. When a wind blows over a field of grain (or grass) a series of waves is set up. Describe the motion of the waves and the heads of grain. What are the effects of resonance? In what way may strings

be set in vibration, and upon what will the character of the tone emitted depend?

3. What is the kinetic (or dynamic) theory of heat? Distinguish between temperature and quantity of heat. Name some of the sources of heat, and the methods of transmitting heat. What are the effects of heat? What is meant by the latent heat of fusion—of vaporization? State the method used by Joule for determining the "Mechanical Equivalent of Heat."

4. Define: A luminous body, a shadow, a mirror, diffused reflection, a prism, and dispersion of light. How do you account for the sun being seen when it is really below the horizon? Assume an object—first in front of a concave mirror and secondly in front of a convex—(plano)—lens. Construct the image for the assumed object. What is meant by the visible spectrum?

5. What is meant by a magnetic field,—a permanent magnet, and by static electricity? What is meant by "local action" in a voltaic cell? How may it be remedied? What are the effects of an electric current? Describe the method of charging a conductor by induction. How do you account for the clouds being charged with electricity? Why can a greater current be obtained from a storage cell than from a primary cell? What is meant by the ohm, the volt, and the ampere?

GEOLOGY.

1. Describe the destructive and constructive action of glaciers.

2. Describe the influence of rivers in the formation and destruction of land and the laws governing same.

3. Describe the influence of animal and plant life in the formation of soil and rock.

4. What is a *fault?* A *fold?* A *joint?*

5. What is a fossil? Of what value are they geologically? What classes of fossils are most common?

6 and 7. Name the different geological periods in the formation of the earth's crust and name the plant and animal life characteristic of each.

8. In what age was coal formed? Describe the origin and formation of coal.

9. Describe the action and formation of volcanoes. Where are they mostly found?

10. Define Geology. Name the different branches or divisions of geology, characterizing each.

CHEMISTRY.

1. Give the formula for the following substances: Aluminum Hydroxide, Potassium chlorate, nitrous oxide, nitric oxide, mercurous chloride, zinc white, blue vitrol, plaster of Paris.

2. Complete the following reactions:

$Zn + H_2SO_4$	=	$MnO_2 + HCl$	=
$HNO_3 + Ca(OH)_2$	=	$Na_2CO_3 + Ca(OH)_2$	=
$HCl + NH_4OH$	=	$KClO_3 + MnO_2$	=
$H_2SO_4 + KOH$	=	$NH_4Cl + KNO_3$	=
$NH_4Cl + Ca(OH)_2$	=	$NaCl + H_2SO_4$	=

3. What is a salt? State how salts derive their names.

4. Upon what two laws is the atomic theory based? State them.

5. What is meant by neutralization? Give your answer in terms of the dissociation (ionization) theory.

6. Give the method of preparation and properties of chlorine.

7. Give the method of preparation and properties of hydrogen.

8. How many grams and how many liters of ammonia can be made from 53.4 gms. of ammonium chloride N=14, H=1, Cl=35.4?

9. Enumerate some of the chief commercial compounds of sodium and write all you know about one of them.

10. What are the chief chemical and physical distinctions between cast iron, wrought iron and steel?

SPECIMEN ENTRANCE EXAMINATION FOR TWO-YEAR STUDENTS.

GEOGRAPHY.

1. Name and locate the capitals of the following states: New York, Arkansas, California, Iowa, Ohio, South Carolina, New Jersey and Utah.

2. Name the six largest cities of the United States and tell where they are located.

3. Name the five largest rivers of the United States and tell where they rise and where they empty.

4. Where are the following mountains: Adirondack, Sierra Nevada, Ozark, Wahsatch, Alleghany, Green and Blue Ridge?

5. Bound the following states: Georgia, Washington, Illinois and Vermont.

6. Through what bodies of water would you pass in going by steamboat from Pittsburg to Chicago?

7. Describe the physical features of New England.

8. What is the area and population of New Hampshire?

9. In about what latitude and longitude is New Hampshire located.

10. Name the counties of New Hampshire and give their county seats.

ARITHMETIC.

1. Give tables for dry measure and square measure.

2. Multiply 18 and 2/3 by 4/15.

3. Divide 4.57683 by .0123.

4. How many tons of hay could be placed in a mow 14 feet square and 22 feet deep, assuming that a cubic foot of hay weighs 6 lbs?

5. What would be the cost of 2,660 lbs. of hay at $14 per ton?

6. How many apple trees could be set in a 6-acre orchard if the trees were placed 40 feet apart each way?

7. What would be the interest on $350 for 20 months at 6 per cent?

8. How many cords in a pile of cord wood 68 feet long and 6 feet high?

9. A bushel contains 2,150 cubic inches; how many bushels of oats could be placed in a bin 6 feet wide, 5 feet deep and 12 feet long?

10. How many tons of silage could be placed in a round silo 14 feet in diameter and 30 feet deep, assuming that a cubic foot of silage weighs 40 lbs.?

ENGLISH.

1. Write a complete letter in answer to an advertisement, asking for a position.

2. Write a careful description of the appearance of the town from which you have come.

3. Define and illustrate the parts of speech.

4. Illustrate the use of the different marks of punctuation. What is a verbal noun, an infinitive, a noun in apposition?

5. Write, in 100 words, the story of the last interesting book you have read.

HISTORY OF THE UNITED STATES.

1. *(a)* Give an account of the first settlement in Virginia. *(b)* Give an account of the first settlement in Massachusetts.

2. Give some account of the French and Indian War, including *(a)* causes, *(b)* campaign of 1755, *(c)* most important campaign, *(d)* political results that followed the war, *(e)* connection, if any, with American Revolution.

3. Name the presidents of the United States, stating approximately the years when each one was in office. Give the political party of each one and some one important fact concerning his administration.

4. What were the causes of the Spanish-American War? What were the results?

5. What is the meaning of "sixteen to one?" What political parties exist at present? What change is proposed in election of United States senators?

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